DOCUMENT RESUME

ED 399 051 PS 024 471

AUTHOR Fleer, Marilyn, Ed.
TITLE DAPcentrism: Challenging Developmentally Appropriate Practice.
INSTITUTION Australian Early Childhood Association, Inc., Watson.
REPORT NO ISBN-1-875890-15-7
PUB DATE 95
NOTE 122p.
AVAILABLE FROM Australian Early Childhood Association, Inc., P.O. Box 105, Watson, Australian Capital Territory, 2602, Australia ($19.95 Australian dollars. Discount on quantity orders).
PUB TYPE Books (010) -- Viewpoints (Opinion/Position Papers, Essays, etc.) (120) -- Information Analyses (070)

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS Child Development; Cognitive Development; *Early Childhood Education; Feminism; Foreign Countries; Individual Development; *Learning Theories; Norms; Preschool Curriculum; *Preschool Education; Problem Solving; Social Influences; Theory Practice Relationship; Thinking Skills
IDENTIFIERS Australia; *Developmentally Appropriate Programs; Developmentally Inappropriate Programs; Gender Issues; Maternal Scaffolding; Poststructuralism; Theory of Mind

ABSTRACT

This book examines the implications of existing learning theories for early childhood education, with a special emphasis on Developmentally Appropriate Practice (DAP). Chapter 1, "Challenging Developmentally Appropriate Practice: An Introduction (Marilyn Fleer), presents the debate and summarizes the remaining chapters. Chapter 2, "Does Cognition Lead Development, or Does Development Lead Cognition? (M. Fleer), explores the limitations of DAP and contrasts it with Socially Constructed Learning. Chapter 3, "Scaffolding Young Children's Learning in Early Childhood Settings" (Alison Elliott), analyzes scaffolding within a sociocultural context. Chapter 4, "A Post-Structuralist Analysis of Learning in Early Childhood Settings" (Glenda MacNaughton), uses feminist post-structuralism to analyze the relationship between the individual and the social and argues that gendering should be considered in any discussion of learning. Chapter 5, "Children as Theorists: Developing a Theory of Mind" (Sue Dockett), examines research on children's progressing theories of mind and argues that practitioners create situations introducing counter-evidence to children's current theory. Chapter 6, "Reasoning and Problem-Solving: Contemporary Theoretical Perspectives" (Beverley Lambert), challenges readers to view the limitations of reductionist research, devoid of social context, and to consider contemporary research, which maps individual pathways. Chapter 7, "The Early Childhood Curriculum Debate" (Toni Cross), reviews research and debate on DAP and discusses the monocultural orientation of DAP. Chapter 8, "Concluding the Debate: Mind Games--What DAP Means to Me" (Margaret Clyde), considers DAP within the historical and contemporary Australian context. Contains over 200 references. (KDFB)

ED 399 051

DAP

PS 024471

Challenging Developmentally Appropriate Practice

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
X This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN OTHER THAN PAPER COPY HAS BEEN GRANTED BY
Kevin Hoare
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

Edited by
Marilyn F

2

DAP centrism

Challenging Developmentally Appropriate Practice

Edited by
Marilyn Fleer

Australian Early Childhood Association, Incorporated

Contents

Chapter 1. **Challenging Developmentally Appropriate Practice: An introduction** 1
Marilyn Fleer

Chapter 2. **Does cognition lead development, or does development lead cognition?** 11
Marilyn Fleer

Chapter 3. **Scaffolding young children's learning in early childhood settings** 23
Alison Elliott

Chapter 4. **A post-structuralist analysis of learning in early childhood settings** 35
Beverley Lambert

Chapter 5. **Children as theorists: Developing a Theory of Mind** 55
Sue Dockett

Chapter 6. **Reasoning and problem-solving: Contemporary theoretical perspectives** 71
Glenda MacNaughton

Chapter 7. **The Early Childhood Curriculum Debate** 87
Toni Cross

Chapter 8. **Concluding the Debate: Mind games– What DAP means to me** 109
Margaret Clyde

© Copyright Australian Early Childhood Association, Incorporated, 1995

ISBN: 1 875890 15 7

Edited by Marilyn Fleer

Production & Design: Kevin Hoare

Cover Design: Lyndon Lovell

Photographs: Alan Nicol with thanks to the Wiradjuri Preschool Child Care Centre, University of Canberra

Australian Early Childhood Association, Inc.
West Wing, Majura Primary School
Knox Street, Watson, ACT 2602

CHAPTER ONE

Challenging Developmentally Appropriate Practice: An introduction

Marilyn Fleer

Introduction

How many times have we as educationalists been shown the following words originally written by Confucius?

To hear is to forget,
To see is to remember,
To do is to understand.

In the 1960s the *do* element within this quotation certainly struck a chord with many educationalists who were moving away from traditional, teacher-focused education to a more liberal, progressive style of teaching and learning. Two important changes took place during that time: the switch in focus from the teacher to the child and that from teaching to learning. The dominant paradigm in general education before that time was behaviourism.

It is now well understood that the behaviourist orientation to teaching, which, simplistically, does not take account of a person's implicit motivation but rather relies upon explicit reward or punishment, was not an adequate theory for explaining the teaching-learning process. In the 1960s Piaget's research and theories, and the subsequent interpretation within an educational context, offered greater insights into the learning process. Since then a Piagetian orientation to learning has predominated in many sectors of education across Australia.

Developmentally Appropriate Practice, which was conceptualised within a Piagetian-based theory and widely supported when first introduced in 1987, now underpins early childhood practice across Australia. Yet, already, many researchers had begun to question the completeness of a Piagetian-based theory for learning (Bruner & Haste, 1987; Donaldson, 1978; Richards & Light, 1986; Wood, 1988). Researchers and practitioners were looking elsewhere to gain a greater understanding of the complexities of the teaching-learning process. Of concern was the playing down of the teachers' role in children's learning and the need to re-appraise what teachers do.

Do we need teachers?

The dominance of progressive education has created a teaching-learning scenario in which teachers themselves are not sure about their role. For example, in science education, constructivism promotes the teachers' role as following rather than leading conceptual thinking. In a video produced by the University of Waikato, the teacher being interviewed says:

> *Well, I definitely don't try to put the scientists' ideas into the children's heads. I try to help them make better sense of their world by challenging the ideas they hold. I take my cue from the children, redirecting them, guiding them, wondering along with them — what the answer might be, and above all else supporting them. (Teacher, Floating and Sinking, 1988)*

Similarly, researchers in working with teachers have positioned teachers in such a way that they are left to feel unable to have a direct input into children's learning. Teaching must be done covertly, as suggested below by Cosgrove & Osborne:

> *We have successfully used a whole-class discussion led by the teacher as the main strategy to make pupils aware of the different types of models that others hold for electric current. ... Sometimes no one in the class suggests the scientists' viewpoint. When this*

happens ***the teacher can propose it, as an alternative, for example, to one suggested by another pupil in another class.*** *(Cosgrove & Osborne, 1985, p.115. My emphasis)*

Edwards & Mercer (1987) have suggested that in child-oriented programs it is the responsibility of the child to be actively involved in the experiences organised by the teacher, and for the child to generate ideas from within that framework. It is the teachers' role to listen and observe, and to follow the children's lead. However, this child-oriented focus in many instances is only rhetoric, as

> *The ideas to be generated are in fact largely preordained, though the pupils are not explicitly aware of this in the lessons.*
>
> *The pupil's real task is, to a significant degree at least, one of inferring and discovering what the teacher wants them to say and do. [and]*
>
> *The teacher seems able, despite what appears to be a relatively open, pupil-oriented and conversational style of teaching, to maintain a close control over the selection, expression and direction of ideas and activities. (Edwards & Mercer, 1987, p.112)*

Clearly teachers are struggling to put this child-centred approach into practice. The playing down of the teacher does little to make it clear to teachers what they must do when working with children. Teachers are receiving mixed messages, since they must somehow encourage children to come up with ideas and at the same time develop children's conceptual understandings without having any explicit input.

It would seem that, within the boundary of the child's interests and developmental needs, the teacher must organise a learning framework. Her/his role has become increasingly marginal and as a result more managerially-oriented. Managerial competence on the part of the teacher is clearly an important attribute needed to ensure successful learning. Yet, when teachers' talk in centres and classrooms is predominantly managerial, learning outcomes are questionable, as the 'Context' example overleaf shows.

The transcript cited was typical of the type of interaction occurring in this classroom during science learning. The teacher focused predominantly upon the smooth running of the classroom and the organisation of children's work. The emphasis on ruling up correctly was not balanced with teacher-child discussion about the content. For example, when the teacher was looking at Megan's science thinking books she did not use that opportunity to ask Megan about her illustration and written entry. Instead she spoke to her about the organisation of her work and correct ruling up procedures. This was not an isolated incident.

'Clearly the role of the teacher as presently portrayed is problematic. The focus on the child has left teachers in the dark about what their role is in a child's education.' Moreover, the focus on the child has also created a situation in which learning has become viewed as an isolated internal activity. Light (1986, p.170) has suggested that 'many developmental psychologists have criticised the picture of the lone child which they consider to underlie the orthodox Piaget model'.

As a result of the confusion surrounding the role of the adult in children's learning, many teachers have adopted a 'stand back and wait' approach. They react to the child's interests and conversations. They see what the child gravitates towards and then make supportive conversation. However, in a recent review of teacher interaction with young children, David (1990) has found that

> *the types of interaction workers have with young children seem to indicate that, far from such dialogue being intellectually stimulating, it*

Context

A Year 2 (7- and 8-year-olds) group of children has just completed a Maths unit on time and is two sessions into a Science unit on clocks. The children have been encouraged to record in an exercise book (science thinking book) their understandings about how clocks work and what they would like to know about clocks. An array of clocks (including a radio-clock) has been provided by the teacher for the children to dismantle.

Teacher: Can you think of another question you need to know? [Child and teacher looking at a partly dismantled clock radio.]

Child: I want to know what goes inside a radio.

Teacher: Well, write that down as your question. Read this to me. [Teacher points to a page in child's science thinking book.]

Child: We want to know how the volume knob works.

Teacher: Right, anything else you need to find out by this... [interrupted] Excuse me, Jane, you're not still not ruling lines properly [looks at Jane and at book]
[Teacher walks from group to group observing what children are doing.]

Ah, Megan, here! And also this page here should have been finished [point to contents of science thinking book]... on this page, instead, you've just changed completely over [turning page of book], you know you've finished talking about this thing and you drew a beautiful picture [looking at next page]. now why didn't we hear about it? [looks at child.]

Megan: I don't know.

Teacher: No, yeah you should finish off your topic on a page and take another page to do this [pointing to contents of science thinking book], and I'd like this line ruled now, and I'd like this ruled now... [Teacher discourse, April 1990]

is often banal and cursory, requiring children to answer closed questions, provide labels and, as one child has put it, 'tell the teacher something they already know'. (David, 1990, p.115)

Clearly, then, the complexities of the teaching–learning process have not been adequately described or framed within the current paradigm. More research into how young children think and learn is needed. Significantly more thinking is needed into how best to support early childhood teachers as they work with children to foster cognition and development. Greater analysis of existing theories, as well as the conceptualisation of new psychological theories for early childhood education, is also urgently needed.

This book attempts to address these problems. It is the result of a symposium held at the University of Canberra. Seventy academics from throughout Australia and New Zealand met to:

- promote new arenas for debate in psychological theory, and
- question current paradigms about how children think and learn.

The chapters that follow are the redeveloped papers given at that symposium. Although the presenters did not meet to plan their papers, the common concern for the existing paradigm in early childhood education ensured that a united voice was heard by all in attendance. The common thread of this book has resulted through divergent, yet complementary, analysis and discussion of *Developmentally Appropriate Practice* (DAP). The particular focus of each chapter is outlined below.

Chapter 2:
Marilyn Fleer

In Chapter Two, Fleer gives meaning to the title of the book: *DAPcentrism*. She explores the limitations of our present educational paradigm for early childhood education. Concern is expressed for how Developmentally Appropriate Practice has been translated into programs which focus predominantly upon 'age appropriateness'.

The work of Vygotsky and Bruner is used by Fleer to contrast the inherent philosophical differences that exist between Developmentally Appropriate Practice and Socially Constructed Learning. The differences are illustrated by Fleer through a cross-cultural analysis of what an early childhood program would look like based on either Developmentally Appropriate Practice or Socially Constructed Learning.

Fleer also argues that researchers and practitioners have become disenchanted with Developmentally Appropriate Practice. The movement in people's thinking can be illustrated through comparing the quotation at the beginning of this chapter to one recently presented by Rhoridda Dawes:

To hear is to forget.
To see is to remember.
To ***involve me*** *is to understand. (Square One, Quality Early Childhood Education, 1991)*

Fleer argues that involving the child in experiences beyond his/her present ability could offer new insights into understanding how children think and learn. This orientation is significantly different from that which presently exists in early childhood education. It is argued that Socially Constructed Learning could provide the stimulus for re-thinking the present paradigm which accepts Developmentally Appropriate Practice as the norm. In this way, the tension that exists between the focus on the individual versus the input from the social contexts can be teased out. Fleer argues that the early childhood profession, because it does not consider the broader social context in which the child learns, could be accused of being DAPcentric.

Chapter 3:

Alison Elliott

Fleer's chapter is followed by a detailed and theoretical analysis of scaffolding (Bruner, 1983) within the context of socially constructed learning (Wertsch, 1985). This metaphorical term was developed by Bruner as a result of research into young children's learning, and his analysis of Vygotsky's writings. This term has in recent times been used in a variety of educational contexts, most notably in language education. Elliott begins her chapter by detailing how this term is used within a sociocultural framework. This is followed by a review of the recent literature into this area. Elliott continues to address the practical implications of scaffolding through a description of a study which examined scaffolded (best practice) and non-scaffolded (discovery) contexts using computers (Elliott & Hall, 1994). Elliott ends her chapter by detailing a range of interactional techniques employed during the process of scaffolding.

Chapter 4:

Glenda MacNaughton

Elliott's chapter is followed by a post-structuralist analysis of learning in early childhood settings. MacNaughton argues that feminist post-structuralist theory provides a useful conceptual tool for analysing the relationship between the individual and the social as outlined earlier by Fleer and detailed by Elliott. However, MacNaughton's writings expand on previous chapters by providing an additional dimension to the analysis of Developmentally Appropriate Practice.

MacNaughton outlines how mainstream developmental psychology is dominated by white, male, middle-class, Westernised ideas. Yet, she says, it is developmental psychology that has formed the basis for Developmentally Appropriate Programs. She argues that feminist post-structuralist theory can assess children's learning and development politically as well as theoretically. She considers gendering to be a fundamental aspect of children's learning and hence it should be in the foreground of any discussion of children's learning. MacNaughton outlines how the process of being 'male' or 'female' influences not only how we understand ourselves and how others understand us, but also the ways in which gender influences the knowledge, skills, and abilities which can be gained by children.

MacNaughton describes how three linked concepts of discourse, subjectivity, and power are used to build the 'subject', and how these transcend all day-to-day activities in ways which influence how and what children learn. She challenges the reader to consider to what extent feminist post-structuralist theory will inform our conception of the child and hence our conception of the early childhood pedagogies we adopt, particularly in relation to Developmentally Appropriate Practice.

Chapter 5:

Sue Dockett

In Dockett's chapter, further analysis into how children think and learn is provided in ways which inform decisions about early childhood pedagogy. In particular, Dockett outlines the child's developing *theory of mind*. Evidence for theory development is drawn from research into young children's theories of mind, which are described as progressing from an implicit, tacit awareness of mind and mental states, at about age two, to an understanding of the mind and mental states as interpretive and representational by about age five. Dockett's research indicates that children change their theories as counter-evidence is presented. She

suggests that we as practitioners should not just wait for this counterevidence to happen but, rather, actively create these situations. She suggests that because we now know that children are more capable than previously described and that our knowledge of young children is constantly changing, we should challenge the basis of programs described as Developmentally Appropriate. She states that a 'sound understanding of Piagetian theory, on its own, is not an adequate base for Developmentally Appropriate Programs' (p.X).

Within this context, Dockett discusses the tension between the focus on individual and the collective or social context. She argues that the 'individual operates within a social context and not a desert'. She suggests that the reason for developing a range of individual understandings and individual realisations is to enable social interaction with meaning. It is because we are influenced by the social context that we try and explain, predict and interpret. This lends support for a wider understanding of the teaching–learning process than is presented within Developmentally Appropriate Programs. This broadening of the practitioners' theoretical understanding is further developed in Lambert's chapter.

Chapter 6:

Beverley Lambert

Lambert argues that the era of the great theorists has now passed. She believes that a blind adherence to a particular approach to teaching and learning is no longer necessary. As argued by MacNaughton, Lambert states that the norms which have been used as signposts are based upon Western cultural assumptions and practices. She challenges the reader to move beyond outdated theoretical dogma to multidimensional perspectives and contextual psychology. The emphasis is on analysing development in context. This means more than just considering gender, age, and experimental variables. Context is seen to mediate the influence of both environmental and innate variables. Here the interrelatedness of factors is a central element to understanding multidimensional perspectives of children's cognition.

In her chapter, Lambert questions three basic assumptions about development. Firstly, she discusses Fischer & Silvern's (1985) work. They outline how misleading it is to think of stages without also thinking of individual differences, but similarly how misleading it is to consider individuals without also thinking about commonalities. In this discussion Lambert not only discusses developmental theory, but the methodologies used to derive normative data. Secondly, the assumption that development occurs through an invariant sequence of age–related stages is questioned. Finally, Lambert questions the notion that cognitive advancement occurs as a tightly sequenced linear hierarchy of steps. Here she outlines a number of multidimensional approaches to cognitive psychology that offer numerous pathways and goals and hence frameworks for conceptualising and analysing children's development. Overall, Lambert challenges the reader to view the limitations of reductionist research, devoid of the social context producing normative developmental data, and to consider contemporary research which maps individual pathways.

Chapter 7:

Toni Cross

In Chapter Seven, Cross brings together contemporary research and debate on Developmentally Appropriate Practice in an extensive and reflective review of the literature. She

outlines past and recent literature which has criticised and supported Developmentally Appropriate Practice. She argues that researchers such as Spodek (1988; 1989) have suggested that Developmentally Appropriate Practice provides a pedagogical framework but does not provide practitioners with guidance on the content to be taught.

Cross continues the review through a discussion of the monocultural orientation of Developmentally Appropriate Practice. As has been argued by MacNaughton and Lambert in earlier chapters, the developmental norms are not inclusive of all cultural groups who form the clientele of those involved in Developmentally Appropriate Practice programs in Australia. Cross reports that the implementation of Developmentally Appropriate Practice in America has seen the push towards standardising the socialisation of children into monocultural norms (Jipson, 1991). It can be argued that this socialisation towards a monoculture is likely to be that of the dominant culture: namely white, Anglo-Saxon children. Similarly, Cross reports that the curriculum founded upon DAP is also biased towards male development (Kessler, 1991). This section of Cross' chapter is followed by an analysis of the counter arguments put forward by those who espouse Developmentally Appropriate Practice. Cross adds to this review her own argument about the confusion regarding terminology. She suggests that the main problem with the debate about Developmentally Appropriate Practice is the lack of agreement about the crucial terms and the focus of the debate. She addresses these two aspects in detail in the latter part of her chapter. Definitions for the key terms are outlined, followed by an appraisal of their use in the Developmentally Appropriate Practice debate.

Chapter 8:
Margaret Clyde

In the final chapter, Clyde brings together the different threads presented in the book through a carefully considered and reflective analysis of DAP within the Australian context.

Clyde begins her discussion by introducing the early influences on early childhood education in Australia, followed by a critique of those overseas programs which have also had some impact on the Australian scene. The influences of Piaget on these programs, particularly DAP, are noted by Clyde. A wealth of evidence is presented in this final chapter to cast doubt on the theoretical basis of DAP and those programs built on this perspective.

New arenas for debate in psychological theory

Each writer challenges the usefulness of Developmentally Appropriate Practice for early childhood education. As a group, they suggest new directions in psychological theory. In particular, considering the current paradigm as *DAPcentrism* opens the way to viewing the teaching–learning context quite differently. Our understandings of the complexities of the teacher's role in children's learning will develop only when we move outside existing paradigms and question current practices. Locking ourselves into Developmentally Appropriate Practice without considering other ways of viewing teaching and learning does little to move knowledge forward.

DAPcentrism offers little scope for this type of exploration, and hence we need to move away from the blind obedience we have in early childhood education to Developmentally Appropriate Practice. It is hoped the following chapters will provide some evidence for rethinking what we have come to accept as the norm in early childhood education.

References

Elliott, A. & Hall, N. (1994, April) *The effects of self regulatory teaching on 'at-risk' preschoolers mathematical learning.* Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans.

Fischer, K. & Silvern, L. (1985) Stages and individual differences in cognitive development. *Annual Review of Psychology, 36*, 613–648.

Jipson, J. (1991) Developmentally appropriate practice: Culture, curriculum, connections. *Early Education and Development, (2)*, 120–136.

Kessler, S. (1991a) Alternative perspectives on early childhood education. *Early Childhood Research Quarterly, 6* (2), 183–197.

Kessler, S. (1991b) Early childhood education as development: Critique of the metaphor. *Early Education and Development, 2* (2), 183–197.

Spodek, B. (1988) Early childhood curriculum and the definition of knowledge. Paper presented to the Annual Conference of the American Educational Research Association, New Orleans, 1988. ERDS.

Bruner, J. (1983) *Child's language. Learning to use language* London: Oxford University Press.

Bruner, J. & Haste, H. (1987) (eds) *Making sense: A child's construction of the world* USA: Methuen.

Cosgrove, M. & Osborne, R. (1985) A teaching sequence on electric current. In Osborne, R.J. & Freyberg, P. (eds) *Learning in science* Auckland: Heinemann.

David, T. (1990) *Under five — under-educated?* Milton Keynes: Open University Press.

Donaldson, M. (1978) *Children's minds* Great Britain: Fontana.

Edwards, D. & Mercer, N. (1987) *Common knowledge. The development of understanding in the classroom.* London: Methuen.

Elliott Gray, B. (1982) *Gathering yams.* Treagar Park, Alice Springs. (unpublished children's book).

Light, P. (1986) Context, conservation and conversation. In P. Light, S. Sheldon & M. Woodhead (1991) (eds) *Learning to think.* Child Development in Social Context 2. New York: Routledge.

Light, P., Sheldon, S. & Woodhead, M. (1991) (eds.) *Learning to think.* Child Development in Social Context 2. New York: Routledge.

Richards, M. & Light, P. (1986) (eds) *Children of social worlds.* Cambridge: Polity Press.

University of Canberra & Department of Education and Training (1991), *Square One: Quality ECE* (video).

University of Waikato, Centre for Mathematics & Science Education Research (1988), *Floating and Sinking* (video).

Wertsch, J. V. (1985) *Vygotsky and the social formation of mind.* London: Harvard University Press.

Wood, D. (1988) *How children think and learn.* Oxford: Basil Blackwell.

Does cognition lead development,
or does development lead
cognition?

CHAPTER TWO

Does cognition lead development, or does development lead cognition?

Marilyn Fleer

Introduction

In this chapter the limitations of the present educational paradigm for early childhood education will be explored. This will be done by contrasting Developmentally Appropriate Practice with the writings of Vygotsky (Wertsch, 1985) and Bruner (1987). The two orientations to learning will be considered through an examination of a newly defined curriculum area, namely technology education. In a cross-cultural context of Aboriginal children's drawings/designs of their living environment as they engage in technology education, the entrenched view of Developmentally Appropriate Practice (DAP) will be shown to be *DAPcentric*.

Developmentally Appropriate Practice in early childhood programs

In early childhood education the dominant paradigm and discourse is arguably Developmentally Appropriate Practice (DAP). While DAP has been interpreted in many ways, the most cited supporting material for this philosophical position and approach to curricula planning is from the National Association for the Education of Young Children (1987).

The concept of *developmental appropriateness* has two dimensions: age appropriateness and individual appropriateness.

1. **Age appropriateness**. Human development research indicates that there are universal, predictable sequences of growth and change that occur in children during the first nine years of life. These predictable changes occur in all domains of development — physical, emotional, social, and cognitive. Knowledge of typical development of children within the age span served by the program provides a framework from which teachers prepare the learning environment and plan appropriate experiences.
2. **Individual appropriateness**. Each child is a unique person with an individual pattern and timing of growth, as well as individual personality, learning style, and family background. Both the curriculum and adults' interactions with children should be responsive to individual differences. Learning in young children is the result of interaction between the child's thoughts and experiences with materials, ideas, and people. These experiences should match the child's developing abilities, while also challenging the child's interest and understanding (Bredekamp, 1987, p. 2).

Program planning for children by those who take a DAP position, predominantly follows rather than leads children's development and hence cognition. The emphasis is on the teacher's understanding of, and planning within, these predictable stages and developmental levels. Elkind (1989, p. 114) illustrates this clearly.

> *From a developmental perspective, the important task for the educator is* matching *curricula to the level of children's emerging mental abilities; hence the principle of developmental appropriateness. Curriculum materials should be introduced* ***only after*** *a child has attained the level of mental ability needed to master them.* (My emphasis)

Elkind's position is quite clear. The matching of curricula is dependent upon the child's present level of mental attainment and not anything beyond that. This is contrary to the work of Vygotsky into the *Zone of Proximal Development* (ZPD) and the recent writings of Bruner on *scaffolding*.

ZPD has been described as:

> *the distance between the actual developmental level as determined by independent problem-solving and the level of potential development as determined through problem-solving under adult guidance or in collaboration with more capable peers* (Wertsch, 1985, pp.67–68).

Simplistically, ZPD represents the child's potential development that is possible when the adult and the child work together rather than independently on learning tasks.

Organising a curriculum within children's ZPD is significantly different from that described in DAP since the latter considers present levels of development by the children and the former potential levels of development.

In early childhood programs, base data on children's development which is utilised by curricula planners is acquired predominantly from direct observation of children within the environment or on specifically planned tasks. Assessment of individual performance is important for matching curricula needs. However, Vygotsky argued (Wertsch, 1985) that Western assessment practices do not recognise and are unable to assess children's potential (or ZPD) since they tend to assess only children working independently. In many situations children who score similarly in tests (where present abilities are being measured) could, under different testing conditions (such as the child working together with an adult on tasks beyond its present ability), score much more highly. Calculations of the prompts given to individuals when working within their ZPD would identify the range of potential differences, and hence educationalists would have a greater understanding about individuals and their curricula needs. By matching curricula to present cognitive levels, children's ZPD cannot be easily ascertained, and children's potential development is less likely to be fostered. Observations of children within this framework, particularly of children working independently, would not accurately determine their potential development and hence curricula needs. As a result, it can be argued that it is likely that many learning opportunities are missed.

Unlike Piaget (1969), who stated that 'Learning is subordinate to development' (p.22), Vygotsky believed that learning is fostered in social situations in which children work on tasks with adults at levels beyond their present independent abilities. He suggested that learning opportunities are optimised when children are working in their ZPD rather than at their present cognitive level. Cazden (1988, pp.101–102) describes this process as a social activity:

> *... cognition begins in social situations in which a child shares responsibility for producing a complete performance with an adult. The child does what he or she can, the adult the rest. In this way, practice on components occurs in the*

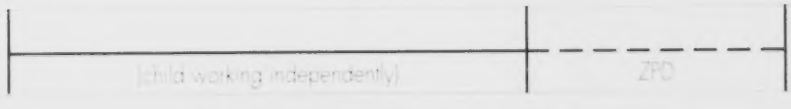


Figure One: A representation of ZPD

> *context of the full performance. In naturally occurring interactions of this kind, the adult will gradually increase expectations of how much the full performance the child can be responsible for.*

Bruner has labelled this process *scaffolding*. This process occurs over time. Initially greater adult involvement in task completion occurs but, as the child is able to undertake more of the task responsibility for task completion is handed over to the child. Some researchers have shown this process in action, for example Gray (1987, 1990) in language education.

This view of learning contrasts significantly with that described by the National Association for the Education of Young Children (1987).

> *The process of interacting with materials and people results in learning. Finished products or 'correct' solutions that conform to adult standard are not very accurate criteria for judging whether learning has occurred. Much of young children's learning takes place when they direct their own play activities. During play, children feel successful when they engage in a task they have defined for themselves, such as finding their way through an obstacle course with a friend or pouring water into and out of various containers. Such learning should not be inhibited by adult-established concepts of completion, achievement, and failure. Activities should be designed to concentrate on furthering emerging skills through creative activity and intense involvement (Bredekamp, 1987, pp. 3–4).*

Research by Hutt *et al.*, (1989, p.98) on children's play has shown this emphasis on materials with little adult involvement in children's thinking has been shown to be severely limiting for children.

> *the materials (sand and water) do possess some intrinsic merits, but we feel that these will not be fully realised without an adult posing questions, giving responses and channelling the child's play down new avenues (p. 98).*

Clearly the complexities of the teaching–learning context make the process of learning and scaffolding difficult to describe, and hence difficult to plan for and implement. Light, Sheldon & Woodhead (1991) have suggested:

> *The adult's task is to accurately tailor assistance to the child by being responsive to the child's current effort and understanding of the task goal. ... Children, and other learners, are never passive recipients of adult or teacher input. (p. 51)*

Here the teacher's role is more than one of assessing individual development and matching curricula needs. The adult's role is crucial for the success of the program, since providing learning opportunities which are beyond learners' independent working capability requires adult support if children are not to be frustrated or feel a sense of failure. The scaffolding model begins to describe the complexities of the teacher-child interactions in learning situations. However, more research is needed in this area if we are to fully appreciate the complexities of the teaching–learning context.

Although great insights have been gained from the work of Piaget, the focus on the lone child (Wood, 1988), the disembedded nature of Piaget's tasks (Donaldson, 1978) and the limitations with staged-based development (Richards & Light, 1986; Wood, 1988) have shown his theory for education to be limited. Wood (1988, p. 195) has argued that:

> *Whilst there is evidence favouring the view that one basis for developmental change or learning is cognitive conflict and contradiction*

(e.g. Blachan & Light, 1982) ... far more is involved in effective teaching than simply providing material for the child to 'digest' or activating competing ideas that are already implicit in his [sic] thinking. ... the view that adult and child, working together, can construct new schemes through shared interaction. The potential effect of teaching will prove to be far greater that Piagetian theory allows. What the child develops, in this alternative conceptualisation are not mental operations derived from his [sic] actions on the world, but 'concepts' that are jointly constructed through interaction with those who already embody them, together with ways of doing and thinking that are cultural practices, recreated with children through processes of formal and informal teaching.

The reliance upon Piaget's work for the formulation of DAP, with very little room for considering other approaches, has lead to a paradigm for early childhood education which is *DAPcentric*. Even Sylva (1990, p.105) has questioned this reliance.

...I've argued that Piagetian theory is still useful, although it is too narrow. There is a need to broaden the developmental theory that guides both ECD [early childhood development] programs as well as their evaluation. Vygotsky (Wertsch, 1986) has shown that children's development within cultures affects their thinking. Dweck (and Leggett, 1988) has stressed the importance of children's beliefs about their own talents: they develop goals which are oriented towards either approval or mastery, and this affects their persistence. It is here that the theory and research of Vygotsky and Dweck may be useful in planning early education and in evaluating it. This work has not yet been integrated into the curriculum of early education.

While DAP is useful, it does not provide a complete picture of the teaching–learning process for either the child or the teacher. The focus on the child is important, as too is a sound understanding of child development, but this emphasis only paints half of the cultural picture. Equal research and thinking needs to be directed towards the role of the teacher and teacher-child interactions within cultural situations and contrived learning context such as centres and classrooms. Clearly, more needs to be understood about the social context and the importance of cultural practices for children's learning.

Culture and learning

Vygotsky argued that children's learning and thinking is embedded in social situations and relationships. This contrasts with the popular image, gained from Piaget's work, "of the child as a solitary thinker struggling to construct a personal understanding of the mathematical and logical proprieties of the physical world" (Light, Sheldon & Woodhead, 1991, p.22). Light, Sheldon & Woodhead (1991, p.x) have suggested that the child is:

... initiated into shared cultural understandings through close relationships with parents and teachers, as well as siblings and peers.

These cultural understandings are significant, since they represent access to the real adult world. In order for children to make sense of their world, they need to have this world interpreted for them within the boundary of their own culture. This begins through a process which has been termed *social referencing* (Feinman 1982; Gunnar &

Stone, 1984, cited in Rogoff, 1991). It can clearly be seen in an infant's first year of life, where the infant will look towards a familiar and trusting adult to interpret situations which are ambiguous, unfamiliar, or not understood. Similarly, as children grow older, they position themselves within the social context so that they are able to actively participate in the adults' ongoing activities.

> *During the first year, babies seem to be automatically interested in whatever object an adult is handling and try to grasp it themselves. ...Toddlers follow their parents around the house, trying to be involved in ongoing activities (Rogoff, 1991, p.82).*

Rogoff (1991, p.82) has suggested that 'children's attempts to learn from adult activities may go unnoticed by parents, who are likely to view children's attempts to "help" or be involved in adult activities as just an inevitable aspect of childhood'. Children participate in the cultural activities of the community to which they belong, and develop skills and understandings that are necessary for participating within that community. Consequently, we find variations in children's skills and understandings across cultures. For example, Rogoff cites the example of a two-year-old Indian girl who, due to the cultural practice of eating with her right hand and cleaning her body with her left hand was able to easily grasp and tear food with one hand only, a fine motor skill not usually expected of two-year-olds from Western cultures. The culture or context within which learning and development occurs can be seen to significantly influence what a child is capable of doing or willing to participate in. When this is considered, the limited nature of stage-based (for example Piaget) or age-appropriate (for example DAP) learning, becomes obvious.

Cross-cultural understandings

A contrast between DAP and the social construction of learning can be shown through an examination of a newly defined teaching and learning area, namely technology education (Curriculum Corporation, 1993). The processes that occur in this field are generally unfamiliar to most young children, particularly the *design* element within the *design, make* and *appraise* (*A National Statement on Technology for Australian Schools*, Curriculum Corporation, 1993). In order to appreciate all of the cultural aspects within this learning field for very young children, family practices within two different cultural groups will be outlined.

Bruner (1983) has shown many examples of mother-child discourse during story-reading in Western cultures. Typically, many infants, toddlers and preschoolers experience story-reading before they commence school. Those who do not are given opportunities during their preschool years, since this is common practice in preschool education. Similarly these children may also watch television programs such as ABC Playschool, which commonly feature a story-reading session.

In story-reading, the typical interactions that take place between the child and the adult in Western cultures can be represented as in the 'Context' (see next page).

There are two levels of infant-mother interaction occurring here. The first level relates to the nature of the interaction and the level of participation controlled by the infant through joint attention, smiles or cries, and even whole body movements. Rogoff (1991, p.82) has suggested that babies 'can indicate interest by looking eagerly toward an object or event, leaning forward and gesturing

Context:

Mother reading a book to her eight-month-old infant ...

Mother:

Ah! *[Rowan looking at book].* This one's called *Good-night Owl* and you've only seen this once, or twice, not very much. *Now Good-night Owl* by Pat Hutchins.

Owl tried to sleep, 'who who who' *[Rowan looking at book, looking at both pages]. [Mother turns the page.]* It's a good book, isn't it?

The bees buzzed, 'Bzz' *[Rowan looks at Mother]*, 'bzz'. There they are 'Bzz' . And owl tried to sleep *[Rowan looking at book].*

The squirrel cracked nuts *[Rowan looks at Mother then at the book]*, 'crunch, crunch, crunch, crunch'. There's the squirrel up here *[Rowan looks at opposite page to where Mother is pointing]*. And owl tried to sleep, 'who, who, who' *[Rowan tries to hold book].*

[As Mother turns page Rowan's arms go up and down twice and smiles.] That's what Mummy has to do.

The crows croaked *[Rowan looks straight up at Mother]* 'crow, crow' *[Rowan looks back at book]* and owl tried to sleep, 'who who'. *[Rowan holds book then lets go when Mother turns the page.]*

The woodpecker pecked, 'ratataptap, ratataptap, ratataptap' *[Rowan looks where Mother is tapping on left side of page then looks back to the owl in centre of book].* And owl tried to sleep, 'who, who' *[Rowan smiles and waves right arm twice looking at book]. [Mother turns the page]* Good story, isn't it? *[Rowan looking at book.]*

The starlings chittered. 'tweet, tweet, tweet, tweet' *[Rowan looks at what Mother is pointing to]* and owl tried to sleep. *[Rowan touches book with both hands, smiles and looks at owl.]* 'Who, who'. *[Rowan has small smile and looks at book, Mother turns the page]*

The robins beeped, 'beep beep,' *[Mother points, but Rowan is looking at opposite page]*, beep beep'. There are the robins right at the top here Rowan. *[Rowan looking at opposite page, arms go up and down and Rowan smiles.]* Yes that's a good story, and owl tried to sleep. *[Rowan looks at left side of book]*

(Mother-infant interactions, April 1993)

toward the object or event with arms, and making enthused grunts'. The second level of interaction is managed by the mother. Over time she helps the infant to understand the social ritual of story-reading. She has indicated to the infant, by her attention to certain things, the importance of looking at the book (left to right), following the mother's finger to objects of importance (in fact identifying the mass of lines as objects), page-turning and joint interaction of the text. Rogoff (1991, p.84) suggests that:

> *...so much of what children are able to do requires being embedded in their culture. They would certainly not learn English without exposure to that language, nor would they develop scripts for restaurants, peek-a-boo, or book reading without involvement in those activities, as observers or participants. Many of the skills that developmental psychologists study are tied closely to the technology (e.g. books, number system, language, logic, television) of culture in which children develop and which children learn to master, with the assistance of people who already participate skilfully in culturally important activities.*

The technology introduced to children, particularly the images in books, are mostly *front-on* illustrations (as opposed to other perspectives such as a *plan-view*) with stylised figures of animate and inanimate objects. In the mother-child interactions shown above, the drawn images of the animals were being defined, labelled, and given significance to the infant. Although the infant at eight months could not relate these stylised images to real birds in the environment, over time the associations made by the mother to the book and real birds would allow this to occur. Common knowledge is being built between the mother and the child during story-reading and other interaction contexts. As a result of this 'enculturation' process, it is not difficult to see how young children when asked to design or draw a house will represent the image shown in Figure Two. The children's experiences tend to mostly be of a *front-view* perspective, and hence these children will draw in this manner.

Evidence confirming this proposition was seen when children in a group of 19 children, between five and six years (with a mean age of 6.2 years) were asked to do three drawings:

- Draw a picture of anything you like;
- Draw a picture of where you live; and
- Draw a picture or design of the Lego Duplo house you have just made

The results are shown in Table One. Of the 19 children, 17 drew a *front-view* perspective when

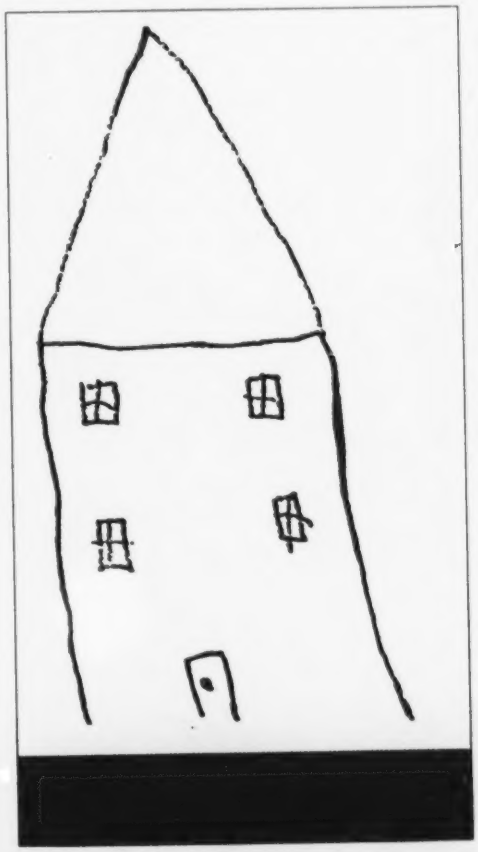
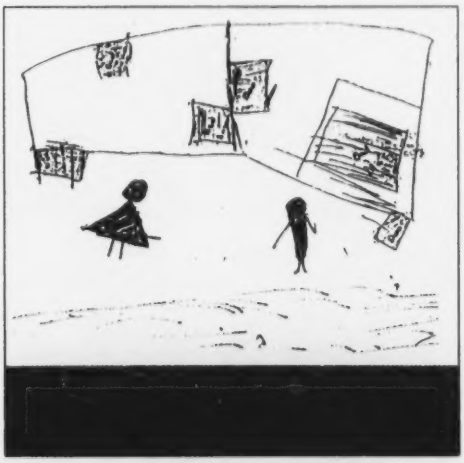


Table One: A summary of children's drawings/designs

	Front view	*Plan view*	*Combination (plan & front)*	*Insufficient detail*	*No response*
Free drawing	17	–	1	1	–
Drawing of a house/their home	17	–	–	1	1
Drawing/design/Lego house	15	1	–	2	1

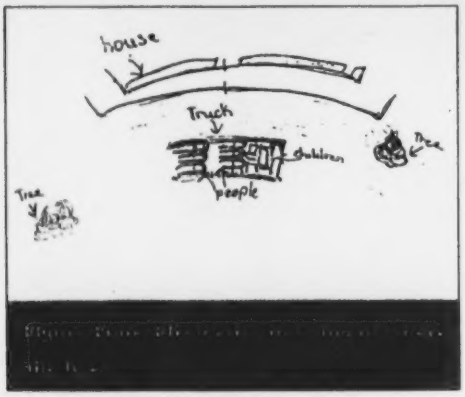
asked to draw anything they wished, with only one child showing a *plan-view* perspective in part of her drawing. Seventeen of the 19 children drew their house similar to that shown in Figure Two. The stylised drawing of a two-storey house featured in most children's work. Even after the children had participated in Lego Duplo construction, only one child drew her design from a *plan-view*. Most drew their construction in a stylised manner similar to their second drawing. These results are consistent with those reported elsewhere (Fleer, 1993).

In contrast to Figure Two, Figure Three shows a *plan-view* of an Aboriginal child's home. This drawing by a traditionally-oriented Aboriginal child (Susan, six years three months) from Ernabella (Lendon, Research with Traditional and Rural Aboriginal Communities conducted in 1973) was done in response to: 'Draw me a picture of where you live'. The term *house* was not culturally appropriate since it was not generic enough to encompass the living environments of all the children who were involved in Lendon's study (for example Figure Four, Elizabeth from Hermannsberg, age approximately seven years).



The different perspective shown can be better understood when this child's family story-telling practices are considered. The perspective and the symbolism used by Elizabeth (Figure Four) are also evident in sand-drawings shown in Figure Five (Gray, 1982) and children's representation of their story-telling on paper (Gray, 1982) shown in Figure Six. Clearly, the ability or inability of young children to intuitively draw from a *plan-view* is significantly influenced by their cultural practices.

The stylised nature of objects in Western culture can be seen not only in books and drawings but also in children's toys, games and jigsaw puzzles. For example, consider the illustrations in Figure Seven of toys designed for infants. The representation of the dog would clearly not be seen as a dog by an infant. An infant's life experiences would not allow her/him to easily associate the toy with the real thing (since it only vaguely looks like a dog). The association between the stylised object and the real item occurs as a result of adult-child interactions. The social context gives meaning to the objects for the child. Hence, cultural associations become defined early, but a full understanding of this association occurs over time.



Similarly, the stylised images shown in the sand drawing in Figure Six are equally as valid as those in Western culture. Children come to understand the stylised images of the fire, women, digging sticks, and coolamons through early and repeated exposure to them in the social context of story-telling.

The power of these stylised objects to influence children's representation of things in their environment, particularly the perspective taken, should not be underestimated. It can be speculated that cultural factors play an important part in children's perspective in drawing and hence ability to participate in design work in technology education. Introducing Western children to a *plan-view* is equally, if not more, challenging, as focusing predominantly upon a front-view for traditionally oriented Aboriginal children.

Conceptualising a *plan-view* is an important part of technology education. Without an ability to represent things from a plan-view, children are unable to effectively engage in technology education. A *plan-view* orientation is not common among young children's experiences in Western cultures. The cross-cultural analysis indicates that this perspective is culturally determined, and hence learnt and not developmentally defined. However, because a *plan-view* perspective is not normally drawn by young children, it could be argued that it should not be included in DAP programs, since it is outside of observed normal developmental patterns. Elkind (1989) makes it clear that 'curriculum materials should be introduced only after a child has attained the level of mental ability needed to master them' (p.114). Since children's mental ability to draw from a plan-view is culturally determined, how would it be possible for children without this background, and hence mental ability, to engage in technology education? According to the position given by Elkind, these children would not be ready to engage in technology education and hence would not be provided with the curricula opportunity until they exhibited the mental structures (drawing from a plan-view) necessary to engage in design work. Similarly, in matching children's 'developing abilities', the National

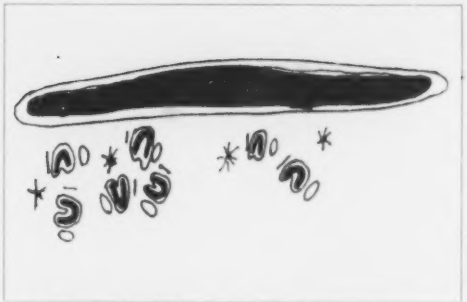


Figure Six: Representations of sand drawings — 'The women getting ready to go collecting yams'

Association for the Education of Young Children in its recommendations for DAP would also hesitate to introduce technology education. Only those children who had the ability to draw from a plan-view would be encouraged to engage in technology education. In a cross-cultural context, this would mean that those children from traditionally oriented Aboriginal families would be provided with an environment which fostered technology education, and those from Western cultures would not be included. In the case of technology education, cultural practices would be a better indicator of curricula needs than 'age appropriateness' (National Association for the Education of Young Children, 1985, p. 5).

Conclusion

In light of these discussions, it could be speculated that early childhood education is caught inside a view of learning which is *DAPcentric*. While it cannot be argued that this approach is entirely limiting, a reliance on only one way of thinking about children's learning should be questioned. The cross-cultural context outlined in this paper does raise some doubts about DAP and our blind acceptance that it offers all we need for explaining early childhood practice and curricula needs for the teaching-learning process.

DAP would suggest that development leads cognition. However, socially constructed learning would invite us to think about cognition leading development. Our understandings of the complexities of the teacher's role in children's learning will develop only when we move outside of existing paradigms and question current practices. Locking ourselves into DAP without considering other ways of viewing teaching and learning does little to move knowledge forward. Certainly the idea of cognition leading development places a great deal more importance upon the role of the teacher in children's learning. This perspective opens up many more avenues for researching how young children think and learn. *DAPcentrism* offers little scope for this type of exploration, and hence we need to move away from the blind obedience to DAP we have in early childhood education.

Involving the child in experiences beyond its present ability could offer new insights into understanding how children think and learn. While this perspective is contrary to DAP, it could, like the plan-view, challenge us to view the teaching-learning context in quite a different way. In the next chapter, Elliott expands upon this idea through a theoretical discussion and analysis of *scaffolding*.

Figure Seven: Infant toys

References

Bredekamp, S. (1987) *Developmentally appropriate practice in early childhood programs serving children from birth through age 8.* USA: National Association for the Education of Young Children.

Bruner, J. (1983) *Child's language: Learning to use language.* London: Oxford University Press.

Bruner, J. (1987) Introduction, in *Making sense: A child's construction of the world.* USA: Methuen.

Bruner, J. & Haste, H. (1987) (eds) *Making sense: A child's construction of the world.* USA: Methuen.

Cazden, C.B. (1988) *Classroom Discourse. The language of teaching and learning.* N.H.: Heinemann Portsmouth.

Cosgrove, M. & Osborne, R. (1985) A teaching sequence on electric current. In R.J. Osborne, & P. Freyberg (eds) *Learning in science.* Auckland: Heinemann.

Curriculum Corporation (1993) *A National Statement on Technology for Australian Schools.* AGPS.

David, T. (1990) *Under five — under-educated?* Milton Keynes: Open University Press.

Donaldson, M. (1978) *Children's minds.* Great Britain: Fontana.

Edwards, D. & Mercer, N. (1987) *Common knowledge: The development of understanding in the classroom.* London: Methuen.

Elkind, D. (1989) Developmentally appropriate practice: Philosophical and practical implications. *Phi Delta Kappan, 71* (2) October, 113–117.

Hewe, M. (1993) Can we incorporate the principles of the National Statement on Technology Education into our early childhood programs? *Australian Journal of Early Childhood, 18* (4), 26–34.

Gray, B. (1982) *Clothawing yams.* Treagar Park, Alice Springs. (unpublished children's book).

Gray, B. (1987) How natural is 'natural' language teaching: employing holistic methodology in the classroom? *Australian Journal of Early Childhood, 12* (4), 3–19.

Gray, B. (1990) Natural language learning in Aboriginal classrooms: reflections on teaching and learning style for empowerment in English. In C. Walton & W. Eggington (eds), *Language: maintenance, power and education in Australian Aboriginal contexts.* Darwin: NTU Press.

Hutt, S.J., Tyler, S., Hutt, C. & Christopherson, H. (1989) *Play, exploration and learning: A natural history of the preschool.* London: Routledge.

Lendon, R. (1993) National Science and Technology Centre. Canberra ACT (Personal Communications).

Light, P. (1986) Context, conservation and conversation. In P. Light, S. Sheldon & M. Woodhead (1991) (eds) *Learning to think.* Child Development in Social Context 2. New York: Routledge.

Light, P., Sheldon, S. & Woodhead, M. (1991) (eds) *Learning to think.* Child Development in Social Context 2. New York: Routledge.

Rogoff, B. (1991) The joint socialisation of development by young children and adults. In P. Light, S. Sheldon & M. Woodhead (eds) *Learning to think.* Child Development in Social Context 2. New York: Routledge.

Richards, M. & Light, P. (1986) (eds) *Children of social worlds.* Cambridge: Polity Press.

Sylva, K. (1990) Evaluating early education programmes. *Early Childhood Development and Care, 38,* 97–107.

Wood, D. (1986) Aspects of teaching and learning. In P. Light, S. Sheldon & M. Woodhead (1991) (eds) *Learning to think.* Child Development in Social Context 2. New York: Routledge.

Wertsch, J.V., (1985) *Vygotsky and the social formation of mind.* London: Harvard University Press.

Wood, D. (1988) *How children think and learn.* Oxford: Basil Blackwell.

CHAPTER THREE

Scaffolding young children's learning in early childhood settings

Alison Elliott

Introduction

A sociocultural view of early learning provides a model for highlighting the interdependent nature of individual, interpersonal, and cultural processes that shape a child's development. Sociocultural perspectives have emerged from the Vygotskian notion that children learn and extend the skills, values, and knowledge of their community through active participation in culturally relevant formal and informal activities with parents, caregivers, other adults and children. Individual intellectual development occurs through interactions and joint problem-solving with people who are more skilled in the use of language and cultural tools. In seeking to understand the development of cognitions it helps to understand the nature of the guidance, both explicit and tacit, that is afforded to children in the context of social interactions.

This guidance is sometimes called 'scaffolding'. The scaffolding analogy comes from the construction industry, where temporary frameworks or 'scaffolds' are used as supports to enable building erection, alteration, or repair. Initially coined by Jerome Bruner, 'scaffolding' refers to the strategies and cognitive supports that guide, model, and cue higher order processes involved in thinking and problem-solving. In an early childhood context, scaffolding simply means helping a child solve a problem or perform a task that could not be accomplished alone. The scaffolds facilitate control of task elements beyond a child's existing cognitive structures and competencies. With this support, a child can engage in a problem-solving activity before he or she is able to solve the problem independently.

In the Vygotskian sense, the guidance afforded by the scaffolds serves to mediate thinking processes in the *zone of proximal development* (ZPD), the cognitive space or 'bandwidth' between what can be accomplished alone and in collaboration with more capable others. This zone represents the difference between what children can do with guidance and what they achieve independently. Over time, children internalise the guides for independent use in non-scaffolded contexts. Hence, as in the construction industry, the scaffolds are temporary.

Over the past decade there has been considerable emphasis on better understanding the process of learning and development in the early childhood years. We now have a richer picture of children's social and cognitive functioning than at any time in the past, yet in many early childhood settings there is little awareness of theoretical and practical approaches to learning other than those generated by Piagetian developmental-stage theory, a theory largely concerned with ways in which children make sense of their world through self-initiated and controlled interactions with their environment.

As mentioned in the previous chapter, a growing body of thought and research that seeks to understand and explain children's learning from a sociocultural perspective is now emerging. Underlying this is the premise that learning is motivated, organised, and communicated within social systems, with participants and contexts jointly defining one another and contributing to the meaning and nature of the event (Altman & Rogoff, 1987, p.24). Within these systems it is the interchange of ideas and thoughts that leads to the progressive restructuring of cognition. Clearly, Vygotskian ideas, such foci on active participation and problem-solving processes rather than products, have many features in common with Piagetian perspectives. But a Vygotskian perspective goes beyond arranging the environment to facilitate children's self-initiated discovery to actively and explicitly assisting and

guiding children's discovery through the use of verbal and non verbal cues, explanations, and demonstrations.

The purpose of this chapter is to explore some of the theoretical bases framing a 'sociocultural' perspective on early education, to highlight the important role of 'scaffolding' to support young children's learning, and to explicate ways in which early childhood teachers can scaffold children's learning in early childhood contexts.

Sociocultural foundations

A sociocultural perspective on early education situates development and learning in a cultural, historical, and institutional setting. It acknowledges that children's thinking and action and the mediators of thought and action are intertwined (Rogoff, 1992; Wertsch, 1991) and that classrooms can be viewed as cultures, where members interact with, and react to, each other over a time (Kantor, Elgas & Fernie, 1993).

Fundamental to this perspective is the Vygotskian notion that children learn and extend the skills, values, and knowledge of their community through active participation in culturally relevant formal and informal activities in social settings. Individual intellectual development occurs through interactions and joint problem-solving with skilled users of cultural tools, such as literacy, mathematics, and mnemonic (Cole, 1985; Rogoff, 1990; Vygotsky, 1978; Wertsch, 1991). Thus, in seeking to understand the development of cognitions, we must understand the dynamics of classroom cultures, especially the nature of the tacit and explicit guidance afforded to children, and how thinking processes shift from interpersonal to the intrapersonal domains.

The concept of 'scaffolding'

Central to a sociocultural view of early learning is a model that views human action and cognition as being supported or 'scaffolded' by mediational means such as tools and language (Bruner, 1975; Leont'ev, 1975, 1981; Rogoff, 1990; Rogoff, Mistry, Goncu, & Mosier, 1993; Vygotsky, 1978; Wertsch 1991). As mentioned earlier, the scaffolding analogy comes from the building industry, and refers to a process of supporting learning within a child's existing executive cognitive structures so that less demand is placed on already stretched cognitive processing systems. Scaffolding aims to minimise the cognitive demands imposed by new tasks by guiding, modelling and cueing higher order processes involved in thinking and problem-solving, through the use of tools and signs, for example, language and diagrams (Day, French & Hall, 1985).

From a very early age children are supported in their problem-solving by caregivers, and other, more expert, people. Wertsch (1980) and Pratt, Kerig, Cowan & Cowan (1988), for example, have found that conversational scaffolds from mothers and fathers enable young children to participate in problem-solving tasks before they're able to solve the same problems unassisted. They operate just beyond, but in anticipation of, competence. Extending this idea to classroom learning contexts, researchers have contended that scaffolded dialogues can provide information and models that are supportive of learners' cognitive growth (Elliott & Hall, 1994; Gauvain & Rogoff, 1989; Palinscsar & Brown, 1984).

The most effective scaffolding is somewhat, but not much, in advance of development. Scaffolding should be directed to where learning is most likely to occur, the *zone of proximal development*. 'Instruction directed at the level of completed

development can, of course, increase the child's knowledge base, but will have minimal effect upon cognitive ability. Instruction directed beyond the proximal level will tend to be incomprehensible to the child and thus affect neither knowledge nor cognitive ability' (Day, French & Hall, 1985, p.36). Subsequently, according to Vygotsky (1978), practice and time enable guidance to be internalised to serve in a cognitive capacity in a non-assisted context. Hence the temporal nature of the scaffolds.

Recently, Rogoff (1990) has extended the scaffolding idea to focus on the broader concept of 'guided participation.' She employs this idea to highlight the 'inseparable nature of whole events in which children and communities develop' (p.5). Guided participation is concerned, therefore, not only with explicit instruction but also 'the sense of development of specific directions that are based on models of human activity provided by previous generations.' (p.5). It involves *bridging* the known and the new. It may involve explicit guidance and direction in formal or informal situations, or less explicitly, more 'tacit and routine forms of communication and activity' (p.5). According to Wertsch (1991), even when mental action is carried out by individuals in isolation, it is inherently social in certain respects. It almost always involves the use of tools such as computers, language, or number systems. Individual or solitary play and side-by-side or parallel play, for example, usually involve both the use of tools and language.

In non-Western cultures, children rely much more extensively on routines, nonverbal communications, and context manipulation than do children in Western cultures (Mistry, 1993; Wertsch, 1991). Rogoff & Mosier (1993), have found, for example, that caregivers and children in the Mayan Indian community of San Pedro rely more heavily on nonverbal means of communication as a source of guidance in problem-solving than do caregivers and children in American contexts. This type of guidance resulted in children taking the lead in solving problems, with their caregivers demonstrating the processes and responsively helping the children when they requested assistance. Evidence of the effectiveness of nonverbal guidance as a means of supporting problem-solving is confirmed by the especially well developed information processing strategies required for negotiating spatial location and arrangement of objects in Aboriginal children of desert origin (Kearins, 1981) and Guatamalan Mayan children (Rogoff, 1986).

Scaffolding and computers

While scaffolding is usually envisaged as mediated by adults and/or peers, computer environments may also provide scaffolds through prestructured content and in-built cognitive supports, for example, feedback, sequencing, multiple representations of material, and the predictable flow of a the activity (Pea, 1987; Salomon, 1990). Entwining these cognitive supports with those afforded by co-participants (adults and peers), as well as the individual's own structuring of activity, should be effective in scaffolding learners' development of new skills and understandings and self-regulatory strategies.

Consonant with a sociocultural perspective on learning, scaffolding interactions in computer-based contexts should serve to generate what Pea (1987) calls 'intellectual partnerships'. In these partnerships the cognitive supports within the computer context assume a role similar to that of a teacher or more expert peer. The 'intellectual partnerships' have the potential to allow each

learner to function at a level that transcends the limitations of his or her cognitive system and may serve to change the balance between accessing prior knowledge and constructing new knowledge, in favour of the latter (Pea, 1987; Salomon, Perkins & Globerson, 1989).

An extension of this idea is a situation in which a small group of learners and a teacher working with a computer-based activity becomes the setting for the establishment of an 'intellectual cooperative'. The notion of a 'cooperative' with an emphasis on a mutually supportive interactive and social context is more reflective of Vygotsky's (1978) notion of the *zone of proximal development* as the distance between abilities displayed *with* social support and those used independently.

Given the Vygotskian emphasis on the importance of interpersonal contexts for the coordination and synthesis of actions and thoughts, it should be the case that a teacher initiated and guided scaffolding process focusing on the development of children's self-regulatory mechanisms affords considerable opportunity for accessing and subsequently abstracting metacognitive-like procedures and strategies necessary for learning.

This 'intellectual cooperative' has the potential to be effective in enhancing task related performance as well as leaving a cognitive residue (Salomon, 1990) in the form of transferable mathematical skills and understandings. In computer-based activities the computer software provides the content and structure of the activity, thus freeing the teacher to concentrate on facilitating interactive processes (Elliott, 1993a). The 'intellectual cooperative' thus provides a setting which embeds learning in a potentially powerful teaching–learning environment, that is, a situation that elicits the cognitive processes required to attain intended educational objectives (de Corte, 1990).

Scaffolding is intended to reduce the processing burden involved in bringing cognitive and metacognitive mechanisms into use during problem-solving. In Logo, for example, which already emphasises the importance of children building their own intellectual structures through the progressive reorganisation of knowledge, teacher initiated supports would be expected not only to improve mathematical performance during mediated activities, but also to become internalised to enhance performance independent of the support (Elliott, 1993b).

Results from a recent study of at-risk preschoolers' mathematics learning highlight the importance of scaffolding in early childhood settings. Participants in the study were 54 four-year-old children, enrolled in preschool early intervention programs,

The concept of scaffolding

who worked on mathematics tasks in small group settings over an eight-week period (Elliott & Hall, 1994). Three teaching approaches were employed: a scaffolded approach which focused on strategies such as goal identification, active monitoring, modelling, questioning, reflecting, peer tutoring, discussion and reasoning. The aim was to explicate self-regulatory activity by providing cues and questions, and modelling and demonstrating skills and strategies to be learnt; a 'best practice' approach in which teachers adopted the method they thought best; and, 'discovery'-oriented approach in which children self-selected activities provided from the normal range in the preschool classroom, such as counting, puzzle, construction, water, and sand play.

After participating in the scaffolded and non-scaffolded (best practice or discovery groups) contexts, children in the scaffolded group had significantly higher post-test scores on measures of mathematical performance than did those in the other two groups. An analysis of covariance showed that improvements made by the scaffolded group were significantly greater than those of the 'best practice' group ($p < .01$), and the 'discovery group'. Moreover, the 'discovery' group made no significant improvements in mathematics scores during the period of the research. Our work suggested that selected scaffolding processes can encourage children to effectively engage in initial problem representation, planfulness, and active monitoring and evaluation of problem-solving activity. For young children at risk of early learning difficulties, then, instructional settings that actively supported development of self-regulatory strategies were an effective means of maximising academic competence.

Given the importance of careful attention to structure and sequencing, the predictable and predetermined flow of a computer-based activity, with its enticing graphics, animation, sound and colour capabilities, seems to be of particular value. Clearly, many computer-based activities suit a guided learning environment because of their multisensory orientation, their interactive and motivational qualities, their facility for reinforcement of concepts, and their ability to simplify tasks into manageable steps. In a small-group or one-to-one teaching situation, computer-based activities can free a teacher from operational tasks such as arranging materials, turning pages or shuffling cards — enabling him or her to concentrate more on scaffolding learning through encouraging, pointing, questioning, probing, and guiding the child (Elliott & Hall, 1994; Zellermayer *et al.*, 1990).

In order for the 'intellectual cooperatives' to be developed, though, in computer or non-computer settings, mindful and effortful engagement on the part of each learner is required. According to Salomon and Perkins (1989), only when learners function mindfully will there be a cognitive residue in the form of subsequent improved transferable competence leading to development of competence. Important to the expenditure of mindful and effortful behaviour is the notion of individual differences in information processing abilities and particularly metacognitive and self-regulatory strategies.

Scaffolding in action

Scaffolding, in an early childhood context, simply means supporting learning by sharing some of the cognitive workload and guiding cognitive activity during problem-solving. It may involve guiding children in problem and goal identification, forward planning, revising,

evaluating and checking outcomes; active monitoring; modelling and questioning; or peer tutoring and discussion. It involves cueing and questioning, as well as modelling and demonstrating relevant skills and strategies. Teaching focus might be on extending children's knowledge by rectifying discrepancies between an individual's response and the ideal situation, through minimising frustration and encouraging risk in problem-solving, and by demonstrating an idealised version of the problem's solution. Adult guidance enables a child's attention to be directed to a narrow range of features and alternatives within the task. In the Vygotskian sense, this is a pivotal zone between what children do with support and what they cannot yet do.

Classroom scaffolding is much more than encouragement, management, or confirmation of learning. The teacher's role is to explicate the cognitive demands of the task and to guide activity within a purposeful and goal directed framework. Teaching, therefore, must focus on overall task orientation, planning, monitoring, and evaluating cognitive activity. Complementary peer interaction, as well as the individual's own structuring of the activity, generates the cognitive and metacognitive dialogues that serve to support and mirror knowledge and thinking. In this sense the interrelatedness of the contextual supports lend themselves to the construction of knowledge. Ideally, the scaffolding process provides ongoing stimulation and motivation for learning, as well as support of a more metacognitive and, particularly, self-regulatory nature.

Ultimately, the goal of all teaching is to help children become active participants and controllers of their own learning. Scaffolding encourages the young child to assume increasing responsibility for some part of the task. As abilities develop, assistance is reduced and problems are solved more independently. At the same time, children continue to encounter different and challenging tasks for which they will need help. 'Effective teaching–learning transactions, thus establish successive zones of proximal development' (Day, French & Hall, 1985, p.36).

Scaffolding implies that children are guided and supported through a learning experience. Characteristics include explicating instructional goals, actively monitoring learner progress, providing immediate and academically oriented feedback, and creating an environment that is task oriented but relaxed. It does not, as mentioned earlier, necessarily have to be entirely verbal in nature. It does mean, of course, high levels of child involvement. Teaching strategies include demonstrating, modelling, turn-taking, questioning, cueing, role reversal, and attention to repetition.

In a classroom context scaffolding, both explicit and tacit, comes from four main sources: teachers, peers, the learner, and technological supports. Of interest in this paper are the explicit techniques teachers can use to scaffold children's learning.

Teacher supports

Teacher scaffolding involves careful guidance of children's efforts within *the zone of proximal development* through the use of techniques such as direct guidance and explanations, verbal and non-verbal cues and questions, demonstrations, and modelling. Specifically, children might be encouraged to focus on goal and problem identification and clarification, planning actions, sustaining mindful and purposeful problem-solving, evaluating actions, and specifying a rationale for decisions- strategies considered important to successful problem-solving. Teacher scaffolding is also enhanced through collaboration with more expert peers. Classroom groupings can be arranged to comprise learners of varying abilities

who can assist and support one another. Over time and with practice, children are encouraged to complete tasks and solve problems independently.

Direct guidance means specifying what a child must do in a particular situation: 'Now count one by one.' 'Point to the first number.' 'OK, now point to the dog.' *Explanations*, especially in conjunction with demonstrations and modelling, assist children to interpret information or actions. Both need to be complemented with specific strategies that encourage children to take more responsibility for their own thinking and efforts.

Cues and questions

A less directive strategy asks children to elaborate and clarify their thinking and reflect on their thoughts and actions through the use of cues or questions: 'What would happen if we move that up just a bit?'; 'OK, now a bit more?'; 'What happened?'; 'Now think about what's next.' 'Can you remember what we did last time?'

Demonstration and modelling of appropriate problem-solving strategies provide children with an idealised representation of a workable solutions. This involves modelled explanations and demonstration with explication of the model's thoughts and reasons for a given action: 'Look I'll show you...' (Teacher counts each sheep, pointing each one to emphasise the process of one-to-one correspondence).

Goal and problem identification and clarification

The purpose of goal and problem identification and clarification is to help children determine what is required in the activity and encourage them to think about the global problem as well as each step of the problem.

'Let's decide what has to be done here.
Where do we have to end up? What do you want it to look like when you finish?'
'What do we have to do first?'
'So what do we have to do?'
'OK, now let's work out, which way first?'
'You show me what we have to do now.'

Planning actions

The act of planning is important to the ultimate self-regulation of problem-solving and teachers. Although supported planning may not always be useful (Gauvain & Rogoff, 1989) planning assistance seems to be important to successful problem-solving, especially in the initial stages or in new activities.

Sustaining mindful and purposeful problem-solving

Strategies for keeping children 'on track' seem critical to problem-solving success (Salomon, 1991). These are mainly verbal in nature and usually implemented by:

(a) breaking tasks into small steps and sequencing the steps toward the desired goal;

(b) actively monitoring learner progress. For example, questioning the child if he or she stops short of the final goal or leaves out an important step. 'What happens next?' 'What should you do now?' Such questions provide implicit cues to assist thinking processes;

(c) providing immediate and academically-oriented feedback: 'Have another look.' 'What has happened?' 'Does that look right?' (Child responds) 'So what should you do?' 'Think carefully.'

(d) providing lots of praise for thoughts and ideas as well as correct solutions: 'Clever boy, that was a thoughtful move.' 'Good thinking is about the process as well as the product,' and

(e) encouraging children to use prompts, cues and mnemonic processes within the environment: 'Can you remember that?' (talking about a square) 'Think about a box. Does it look like a box?' 'What was that number?' 'It's the same as your age.' 'What's that?' 'What colour now?' 'Is it the same as Josh's jumper?'

Evaluating actions and specifying a rationale for decisions

Evaluating or explaining actions helps children review the process of solving a problem.

'Why that way?' 'Tell me why you did that?' 'Think back.' 'Why did you start there?' 'Where else can you start?' This focus is useful in encouraging children to develop a greater awareness of the strategies that are successful or unsuccessful in solving problems.

Conclusion

Scaffolding learning does not, of course, guarantee learning or later performance of the behaviour. Factors affecting learning and performance include children's own motivations, their ability to actively structure the learning context, and their self-efficacy — that is, their self perceptions of capability to learn or perform. These factors affect what children attend to, how they process information, and the value they accord the activity. In addition, the promise of scaffolding is tempered by the realities of the classroom. First, early childhood teachers are busy with the managerial aspects of classroom life, so the amount of time spent interacting with individuals is small. Secondly, even when they do interact with children in a small group learning task, their talk is largely concerned with organisational or behavioural aspects of task management or generic positive reinforcement of the 'good girl/good boy' type (Elliott, 1990).

Sociocultural perspectives on early learning hold that knowledge is a social construct that reflects human interests, values, and actions. *Children's knowledge is influenced by their experiences and their interpretations of experiences over time in the light of their sociocultural world.* As Rogoff (1993) emphasises, this world involves people, societal institutions, and technologies.

Underlying the notion of scaffolding and guided participation is the premise that learning is motivated, organised, and communicated in this social context. Children's progressive restructuring of cognition occurs by transforming cultural tools and practices through activity and interchange of ideas. Situations mediated by more capable peers or adults enable children to demonstrate skills and understandings that are in the process of being learnt but not yet internalised for independent use.

While there is growing literature demonstrating positive effects of scaffolding, various aspects of cognition in various contexts, less is known about processes by which learners construct meaning from scaffolded contexts. Similarly, little is known about how scaffolded techniques can realistically

be applied in everyday classroom settings; which scaffolding procedures best encourage strategy adoption, maintenance and generalisation; and the role peers play in scaffolding. Clearly, though, these processes will have different meanings and consequences, depending on the classroom setting, the teacher's behaviour and the existing cultural climate. And, as Bandura (1986) emphasises, while learners' behaviours are shaped by the environment, they play an equally active role in constructing their social milieu and hence their cognitions.

References

Altman, I. & Rogoff, B. (1987) World views in psychology: Trait, interactional, organismic, and transactional perspectives. In D. Stokols & I. Altman (eds), *Handbook of environmental psychology*, 1. New York: Willy.

Bandura, A. (1986) *Social foundations of though and action: A social cognitive theory*. Eaglewood Cliffs, N.J.: Prentice-Hall.

Brown, A.L., Bransford, J.D., Ferrara, R.A. & Campione, J. C. (1983) Learning, remembering, and understanding. In P.H. Mussen, J.H. Flavell & E.M. Markman (eds), *Child psychology*, 3, *Cognitive Development*. New York: John Wiley.

Bruner, J. (1985) Vygotsky: An historical and conceptual perspective. In J.V. Wertsch (ed.), *Culture, communication and cognition: Vygotskian perspectives* (21–34). London: Cambridge University Press.

Cole, M. (1985) The zone of proximal development: Where culture and cognition create each other. In J. V. Wertsch, (ed.) *Culture, communication and cognition: Vygotskian perspectives*. New York: Cambridge University Press.

Day, J.D., French, L.A. & Hall, L.K. (1985) Social influences on cognitive development. In D.L. Forrest-Pressley, G.E. MacKinnon & T.G. Walker (eds) *Metacognition, cognition, and human performance*, 1. Orlando: Academic Press.

de Corte, E. (1990) Learning with new information technologies in schools: perspectives from the psychology of learning and instruction. *Journal of Computer Assisted Learning*, 6, 69–87.

Elliott, A. & Hall, N. (1994, April) *The effects of self-regulatory teaching on 'at-risk' preschoolers' mathematical learning*. Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans.

Elliott, A. (1990) *The social-cognitive complexity of young children's play in selected computer-based learning environments: An exploratory study*. Dissertation submitted for examination for the degree of PhD., UNE, Australia.

Elliott, A. (1993a) Enhancing thinking skills in computer-supported contexts. *Australian Educational Computing*, 8, 81–92.

Elliott, A. (1993b) Preschoolers' Logo play: Characteristics associated with Logo competence. In P. Georgiadis, G. Gyftodimos, Y. Kotsanis, & C. Kynigos (eds) *Logo-like learning environments: Reflections and prospects* (33–40). Proceedings of the Fourth European Logo Conference, Athens, Greece.

Gauvain, M., & Rogoff, B. (1989) Collaborative problem-solving and children's planning skills. *Developmental Psychology*, 25, 139–151.

Kantor, R., Elgas, P. & Fernie, D.E. (1993) Cultural knowledge and social competence within a preschool peer culture group. *Early Childhood Research Quarterly*, 8, 125–147.

Kearins, J.M. (1981) Visual spatial memory in Australian aboriginal children of desert regions. *Cognitive Psychology*, 13, 434–460.

Leont'ev, A.N. (1975) *Activity, consciousness, personality*. Englewood Cliffs, N.J.: Prentice Hall.

Leont'ev, A.N. (1981) *The problem of activity in psychology*. In J.V. Wertsch The concept of activity in Soviet psychology. Armonk, New York: Sharpe.

Mistry, J. (1993) Guided participation in Dhol Ki Patti. In B. Rogoff, J. Mistry, A. Goncu & C. Mosier (eds) Guided participation in cultural activity by toddlers and caregivers (102–125). *Monographs of the Society of Research in Child Development*, 58, 8.

Palinscsar, A. & Brown, A. L. (1984) Reciprocal teaching of comprehension-fostering and comprehension monitoring activities. *Cognition and Instruction*, 1, 117–175.

Paris, S.G. & Winograd, P. (1990) How metacognition can promote academic learning and instruction. In B. Fly Jones & L. Idol (eds) *Dimensions of thinking and cognitive instruction* (15–52). Hillsdale, N.J.: Lawrence Erlbaum.

Pea, R. (1987) Integrating human and computer intelligence. In R.D. Pea & K. Sheingold (eds), *Mirrors of the mind: Patterns of experience in educational computing* (128–146). Norwood, N.J.: Ablex.

Pratt, M.W., Kerig, P., Cowan, P.A., & Cowan, C.P. (1988) Mothers and fathers teaching three-year-olds: Authoritative parenting and adult scaffolding of young children's learning. *Developmental Psychology, 24* (6), 832–839.

Rogoff, B. (1986) The development of strategic use of context in spatial memory. In M. Perlmutter (ed.), *Perspectives on intellectual development* (107–123). Hillsdale, N.J.: Erlbaum.

Rogoff, B. (1990) *Apprenticeships in thinking: Cognitive development in a social context*. New York: Oxford University Press.

Rogoff, B., Mistry, J., Goncu, A. & Mosier, C. (1993) Guided participation in cultural activity by toddlers and caregivers. *Monographs of the Society of Research in Child Development, 58*, 8.

Rogoff, B. & Mosier, C. (1993) Guided participation in San Pedro and Salt Lake. In B. Rogoff, J. Mistry, A. Goncu & C. Mosier. Guided participation in cultural activity by toddlers and caregivers (59–101). *Monographs of the Society of Research in Child Development, 58*, 8.

Salomon, G. (1990) Cognitive effects with and of computer technology. *Communication Research, 17* (1), 26–41.

Salomon, G. & Perkins, D. (1989) Rocky roads to transfer: Rethinking mechanisms of a neglected phenomenon. *Educational Psychologist, 24*, 113–143.

Salomon, G., Perkins, D. & Globerson, T. (1989) *Partners in cognition: Extending human intelligence with intelligent technologies*. Paper presented at the Annual Meeting of the AERA, Boston.

Vygotsky, L.S. (1978) *Mind in society. The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Wertsch, J. (1980) The significance of dialogue in Vygotsky's account of social, egocentric, and inner speech. *Contemporary Educational Psychology, 5*, 150–162.

Wertsch, J. (1991) *Voices of the mind: A sociocultural approach to mediated action*. Cambridge, MA: Harvard University Press.

Wertsch, J. (1985) *Vygotsky and the social formation of mind*. Cambridge, MA: Harvard University Press.

Wood, D., Bruner, J. & Ross, G. (1976) The role of tutoring problem-solving. *Journal of Child Psychology and Psychiatry, 17*, 89–100.

Zellermayer, M., Salomon, G., Globerson, T. & Givon, H. (1991) Enhancing writing-related metacognitions through a computerised writing-partner. *American Educational Research Journal*.

Zimmerman, B.J. (1990) Self-regulated learning and academic achievement: An overview. *Educational Psychologist, 25* (1), 3–17.

We are interested in exploring the ways in which individuals take up as their own aspects of traditional and coercive gender order such that it is difficult to undo the patterns of desire that hold them into that order.

(Davies & Banks, 1992, p.3)

CHAPTER FOUR

A post-structuralist analysis of learning in early childhood settings

Glenda MacNaughton

Introduction

Theories of children's development and learning have shaped early childhood pedagogies in powerful and pervasive ways, but there is at present some considerable theoretical ferment within developmental psychology about how children learn. Consequently, this is a good time at which to re-evaluate many of the taken-for-granted understandings of the child that have characterised early childhood pedagogies in recent years. Several contributors to this book suggest that the conceptions of development and learning upon which developmentally-appropriate practice is based are highly problematic, and so now a re-appraisal would be timely.

This chapter shares the view — expressed in Chapters 2, 5, and 6 — that dominant conceptions of learning and development, such as Piaget's, have been problematic because they have inadequately conceptualised the social and cultural constituents of learning. Feminist post-structuralist theory can address these problems because it offers several distinctive conceptual tools through which the relationship between the individual and the social can be rethought. In this chapter, for example, they are used to examine aspects of children's learning.

Feminist post-structuralist theory represents a powerful and growing tradition of researching, theorising, and writing about children's learning. This chapter draws on this tradition, especially on the work of Valerie Walkerdine and Bronwyn Davies. The intentions are twofold. Firstly, to open up debate from within a theoretical terrain that has had little 'air-time' within mainstream early childhood literature in Australia and in the USA; and secondly, to excite and/or increase interest in the ideas and understandings from within feminist theory. Interest in feminist post-structuralist theory derives from the ways in which it addresses the complexities of the relationship between the child, the adult and their cultural context — specifically, the ways in which it focuses attention on the constitutive roles of gender, race, class, and disability in children's learning and development.

Two overarching ideas inform a feminist post-structuralist approach to children's learning and distinguish it from the other approaches explored elsewhere in this book. The first is crucial to feminist post-structuralist theory: theories of children's learning and development should be assessed politically as well as theoretically. The second is the idea that *gendering* fundamentally constitutes all aspects of children's learning and hence should be foregrounded within any discussion of children's learning. ['Gendering' refers to the processes of being, affecting, doing and becoming masculine or feminine within a particular society (Butler, 1990).]

This chapter will concern the constitutive force of gendering within children's learning, but the conceptual tools of feminist post-structuralism can also be used to examine the constitutive force of ethnicity, 'race', class, and disability in children's learning. (See for example, Walkerdine & Lucey, 1989; MacNaughton, 1993). Examining these constitutive forces is crucial to any process of re-evaluating approaches to children's learning. If we are to move beyond the white, male, middle class, Westernised ideas that have so far dominated mainstream developmental psychology and, therefore, early childhood pedagogy, such an examination needs special attention in any reconceptualisation of children's development and learning (see Dehli, 1993; MacNaughton, 1992; Walkerdine & Lucey, 1989).

Post-structuralist social theory: a short history

Firstly, a brief overview of post-structuralism for people unfamiliar with its genesis as a theoretical perspective within the social sciences. Post-structuralism emerged in post–1968 France. What 'it' is, is problematic to define. It is almost a tautology to state that there are many understandings of post-structuralism (or post-modernism). There are varied, complex and shifting understandings of what 'it' means. However, there are epistemological problematics, and theoretical explorations, that can be identified as post-structuralist. Broadly speaking, post-structuralists in the social sciences are interested in how we live 'our lives as conscious thinking subjects, and how we give meaning to the material social relations under which we live and which structure our everyday lives' (Weedon, 1987, p.26). They are interested in how and why we learn to become who we are, and they have focused on concerns familiar to sociology and psychology, such as the relation between cognition and language, and the relation between the individual and society. Post-structuralism has recast the ways in which these relationships should be conceptualised. Davies (1993) suggests that post-structuralism:

> *...undoes the boundaries between the disciplines of sociology, psychology, history and studies of literature... it looks at the constitutive force of social structures and of language as well as at the individual person (or subject) and sees each of these in their social and historical contexts. (Davies, 1993, p.xviii)*

Post-structuralism has contested many of the 'taken-for-granted' epistemological understandings of 'the self', and how we give meaning to our social world, in several disciplines, including psychology. For example, post-structuralism directly challenges many existing theories of socialisation, language, and cognition, arguing that they inadequately theorise the relationship between the individual and the social.

Post-structuralism derives from a theoretical shift away from structuralist understandings of language, the individual, and society that have, in recent years, dominated the social sciences. In particular, it represents a move away from the deterministic role of structure in constituting the subject to one in which the subject is in part agentic. (For example, post-structuralism represents a shift away from Saussure's structuralist linguistics, Piaget's cognitive structuralism of the mind, and Marxist explanations of class structures.)

Feminist post-structuralists (Weedon, 1987) share with other post-structuralists the view that a number of aspects of how we have explained, understood, practiced, and experienced social life, need to be rethought, especially notions of identity, how we learn it, and how we change it. What distinguishes *feminist* post-structuralism from other 'types' of post-structuralism is a focus on the ways in which we understand ourselves, and others understand us, as male or female, and how these categories come to limit how we see ourselves, what we want to become, and how and what we learn. In other words, it focuses on the ways in which gender influences the knowledge, skills, abilities, and understandings that children gain.

The following story about Anne, Pamela and Micheal provides a reference point for exploring feminist post-structuralist understandings of children's learning.

The Mud Patch

Micheal and Anne (both nearly five years of age) have just entered a large mud-patch, with water nearby, trucks, spades, etc.

Anne leaves when Micheal uses the hose to fill a deep muddy hole. She had been splashed with muddy water a few times and told Micheal so. She leaves immediately after a large mud splash hits her, and as she leaves, she tries to brush the mud from her 'smock'. She returns within a few minutes in clean clothes carrying a plastic plant spray. As Micheal fills the muddy hole, she delicately sprays water on the tyres near the hole, constantly monitoring Micheal's actions with the hose and the trajectory of splashing mud.

Pamela, four years of age, was an onlooker for a few moments while Anne was in the mud-patch and experiencing mud splashes. She and the researcher are onlookers, standing close to each other, and she tells the researcher what a naughty girl Anne is. Pamela looks for a while longer and leaves quickly when the final mud splash hits Anne. She tells the researcher that she is off to be with her friends, and they that are not naughty.

Micheal has immersed himself totally in the deep, muddy hole that he has dug. He is laughing a lot and wallowing in the muddy mess. By the time this happens, Anne has been on the side for some minutes with her plant spray. During his immersion she pleads with Micheal to leave.

She insists that he has been playing there for a long time, and that he must be bored by now and want to play another game with her. Micheal tells Anne she is bothering him and should go away. Anne stays. She waits for over 20 minutes for him to finish.

What, if anything, were the three children learning through this mud-patch play? How did they and the people around them see these events?

The kindergarten assistant (Rebecca) saw Anne's friendship with Micheal as unusual and a real 'success' story for her teacher's non-sexist curriculum. Anne was really a non-sexist little girl because she was a 'tom-boy', playing in the mud and playing with Micheal a lot in the sandpit. For Rebecca, the play in the mud on this day was the example par excellence of this way of looking at and understanding Anne. Anne was digging with spades, playing with trucks, and getting a bit muddy. However, Rebecca was surprised that Anne had left before the 'real' fun, given that she was such a tom-boy. She was also surprised that Anne wanted Micheal to leave, considering that he was having so much fun. So her reading left the following problems: how could she explain Anne's actions? Why was Anne's non-sexist disposition not working in this instance?

The teacher explained what the children were learning from the play, to a parent about to enrol a child at the kindergarten and who seemed a little horrified at the 'mess' that Micheal and Anne were making. The list was extensive and included: practicing fine motor and large motor skills; learning mathematical concepts of measuring width, depth, and volume; practicing language and communication skills; and using their imagination. Through this experience each child was developing important skills, and developing in her/his own way. Micheal's final immersion was explained in terms of the textures he experienced and the practice of physical skills. The teacher said Anne left because her concentration span was often not as long as Micheal's, and that her imagination, along with that of many other children in the kindergarten, was not as active.

Pamela, a four-year-old girl, looked on, at least for a while. She stated that Anne was a naughty girl because she was getting dirty and her mummy would be cross with her. Later it was found out from her mother that Pamela had recently been to a birthday party and got very dirty making mud-pies with a friend. Pamela left before Micheal's final immersion, going off to tell her girl friends how naughty Anne was. Pamela told her mother later that day that she didn't want Anne to come to her birthday party because Anne was a naughty girl.

Anne explained, as she sat on the sidelines, that she loved Micheal and didn't like him to stay in the mud, 'cos she couldn't kiss him when he is all messy'.

Micheal explained a few days later that he was excavating for treasure, that was 'so deep'; that's why he needed to stay in the mud. He also said that Anne was 'bothering' him.

How would you explain Anne's and Micheal's involvement in the mud-patch? What were they learning? How were they learning? Was the teacher right? Were they practicing and learning a range of mathematical concepts, skill building, and developing as individuals in unique ways as the teacher suggested? Or, was Anne learning to be naughty and break the rules, as Pamela suggested? Or was Anne learning to successfully challenge sex-role stereotypes, as Rebecca suggested?

Our favoured interpretation depends on the explanatory frameworks we use to make sense of our social world. For example, the teacher was immersed in developmental frameworks, the assistant in notions of sex-role socialisation, and Pamela in a particular framework for understanding being a girl.

A different interpretation could be made of the social world of Anne and Micheal, and what they

were learning in the mud-patch. Their decisions and their relationship could be seen as being totally bound up with who each was as a boy or a girl, and especially with how they each saw that boys and girls could and should think, be, feel, and act. Anne and Pamela were each caught up in very traditional ways of being girls. Anne could not be seen as a 'non-sexist success'. Her way of being a girl meant that she was deferring to Micheal and learning that relationships with boys mean that your own interests need to be silenced or come second best. Pamela was bound up in very traditional understandings of girls as clean and careful, and never rule-breakers. Both Pamela's and Anne's learning (the knowledge, skills, and abilities being gained) in this brief moment in their lives were totally bound up with their gender. It was fundamentally constituting who they were, how they were, and what they chose to see, do, act and feel. For example, Anne was learning in very concrete ways about spatial relationships. She was learning especially about trajectories of flying mud. However, she was learning about this in a context in which gender was fundamental to her interest in trajectories, her experience of them, her feeling about them and hence her understanding of them. Her gender constituted what she learnt, how she learnt it and how she felt about it. It shaped and limited what she engaged in. Her cognition was not separate from her gender, but fundamentally constituted in, and through, it.

The theoretical underpinnings of learning in the mud-patch will emerge as we journey through some key ideas within post-structuralism.

Feminist post-structuralism: The conceptual tools

The theoretical tenets of feminist post-structuralism build from the particular ways in which the relationships between social structures, institutions, identity, language, and meaning are understood in, and via, three linked concepts: discourse, subjectivity, and power. These concepts are used to explore how we become 'made subject' (Davies & Banks, 1992, p.3), how we develop patterns of being that become our identity (our subjectivity). Specifically, these concepts have been used to rethink how children, and adults in interaction with children, produce gendering and meanings of gendering in their day-to-day lives and the ways in which this influences children's learning.

Feminist post-structuralist understandings of discourse, subjectivity, and power have been used by Davies (1989a) and Walkerdine (1992) to recast understandings of children's learning in early childhood. While these concepts are common to most 'types' of post-structuralism, feminist post-structuralism uses them to focus on, problematise, analyse and rethink current gender relations. The concerns of feminist post-structuralism in relation to identity and gender relations are explained by Davies and Banks in the following way:

> *We are interested in exploring the ways in which individuals take up as their own aspects of traditional and coercive gender order such that it is difficult to undo the patterns of desire that hold them into that order (Davies & Banks, 1992, p.3).*

In other words, feminist post-structuralism is concerned with how traditional ways of organising

relationships between male and female are accepted by many women (and men) as normal, acceptable, and pleasurable, and it tackles this concern using post-structuralist 'tools' of analysis. The focus on gender as a point of analysis and the assumptions about the problematic implications of current gender relations particularly marks feminist post-structuralism in contrast to other 'types' of post-structuralism.

The intention is to explore some ways in which our division of the world into two genders (male and female), with particular norms that regulate what it means to be male and female, often works against the interests of specific girls and boys. The associated questions in relation to the mud-patch are: how do children such as Anne come to believe that it is acceptable, normal, and pleasurable to defer to Micheal's needs in the mud-patch? Why does Anne find relationships that may disadvantage her, such as that with Micheal, pleasurable or desirable? Why did she find the mud-play enjoyable for a while, but then stop? How did Pamela and Micheal come to have such different understandings of what is 'fun', which influences their choices about what to 'do' at kindergarten? How does this influence their learning in the mud-patch? In broad terms, was gendering constitutive of their learning in the mud-patch?

In using discourse, subjectivity, and power as 'tools' for exploring children's learning, it will be explained how feminist post-structuralism understands these concepts. Through reference to the mud-patch, it will be possible to see how these ideas can be used to offer understandings of children's learning and of the constitutive place of gendering within this.

Discourse

In traditional linguistics, 'discourse' refers to the connected passages of oral or written text (Stubbs, 1983), i.e. passages of language, analysis of which can uncover the 'real' meaning of what is being said or written by looking for patterns and connections between words.

While feminist post-structuralism builds on the notion of discourse as frameworks within language, it moves outside of this meaning in several notable ways. Discourse is recast to refer not just to language but also to the historically and culturally specific categories through which we give meaning to our lives, practice our lives, invest emotionally in our lives and constitute our social structures.

For example, gender provides many categories through which we give meaning to our lives. Specifically, it posits categories such as masculinity and femininity through which to understand ourselves and others. There is a host of categories within our language that define and delineate people on the basis of gender.

Within post-structuralism, the description of these categories as a discourse refers to more than language. It refers also to the social practices such as dressing, acting, thinking, feeling, and being that constitute masculinity and femininity in our society; to the emotional investments people make in their gender; and to the social practices and structures that are organised on the basis of gender. Thus, within post-structuralism, discourse is recast to include the emotional, social, and institutional frameworks and practices through which meaning is constituted in our lives.

For example, if post-structuralists refer to Anne's gender discourses, they are referring to more than the words she has learnt that relate to gender, such as 'girl' or 'girlfriend'. They are referring to the

social practices in and through which she has learnt the meaning of the word. These include the ways in which she and other people have produced interactions and expectations of her as a girl, such as walking down the street and observing the differences between boys and girls; attending kindergarten and being laughed at when she doesn't wear a dress; receiving 'oohs' and 'aahs' from grandparents when her dress is pink and frilly. These are all practices that provide meaning to being a girl in her social world. They form her understanding of gender; they therefore constitute part of the discourse of gender.

Furthermore, institutional meanings and practices relating to gender will also constitute her understandings of gender. Institutions such as the family (her parents and sister), the media (TV) and the kindergarten (via Micheal) provide frameworks through which she will give meaning to her social world, as a girl. Post-structuralism attempts to encapsulate these complex interconnections between language, meaning, the individual, and the social by its recast notion of 'discourse'.

Post-structuralist meanings of discourse derive from the way in which the relationship between language, meaning, emotion, the body, social practices, the individual, and society are understood. In post-structuralism, language is not seen as reflecting reality but constituting it. In other words, post-structuralism enters the old debate about language and cognition and takes the position that language is constitutive of meaning-making. The implications of this position are canvassed in what follows.

Discourse does not reflect reality, it constitutes reality

By starting from the epistemological premise that language constitutes rather than reflects reality, post-structuralism argues that reality is socially constituted in and via discourses. Discourse cannot reflect reality because there is no reality which is not constituted in discourses.

From this position, post-structuralists assert that there is no essential truth about our social life (Weedon, 1987), because meanings in social life are socially constructed, negotiated, and therefore variable rather than inherent. Only if meaning is inherent can there be a general measure of right and wrong, and so rejecting the notion of inherent meaning enables all meanings (knowledge claims) to be contested and recreated. In other words: no meanings can claim truth, and therefore the search for one universal truth about children's learning is misguided.

Hence, each discourse is but one of many frameworks that could be used to constitute meaning in, and to categorise, our social world. In other words, post-structuralism enters familiar debates about how we know what is a true reflection of our reality, and takes the that position there is no 'truth', only a variety of truths, about our world. Each discourse is merely a possible version of events, a possible way of giving meaning to reality that is historically and culturally specific.

This post-structuralist premise suggests that no one was 'right' in how they understood what was happening in the mud-patch. No one had THE truth of the matter, we all had different 'truths'. The teacher, working within developmental understandings, had no especial claim on 'truth'. Her understanding of events was just one of many that were possible. The others weren't mistaken; they each produced their understandings from within different discourses about how boys and girls should be and act at four-and-a-half years of age.

The idea that there are different ways of viewing the same event is familiar to us within early childhood. We have become used to different

ways of giving meaning to the child. Therefore, we can easily accommodate the argument that Pamela, the teacher, and Rebecca each had their differing understandings of what was happening in the mud-play. We can accommodate the idea that Piaget and Vygotsky understood children's learning differently. However, feminist post-structuralism moves beyond this position in two distinctive and interconnected ways.

Discourse and Power

Firstly, it recognises that, in a given society at a given point of time, only certain discourses are in circulation. The ways in which adults and children can understand children's behaviour will be limited by, or expanded by, the understandings to which they have access. Pamela cannot understand play in the mud-patch in the same way as the teacher, because she does not have access to developmental discourses, even though she will be 'read' through them by the teacher. If Pamela had access to those discourses, she could watch Anne not as a 'naughty girl', but as a girl 'practicing her motor skills'. Her choices about what to do could have been different. Anne may have been able to come to Pamela's birthday party! Also, Pamela might have decided to practice her own motor skills, rather than to leave in horror. But Pamela didn't do this because of the way in which she understood being a girl. Hence, the discourses in circulation, in a particular society, at a particular point in time, will influence children's learning, often through influencing many of the choices they make about what is pleasant and appropriate to do.

Secondly, post-structuralism is very distinctive in the understandings of the relationships between these discourses, and of their implications. A multiplicity of meanings about our social world are in circulation, and each one is aligned with, and constitutes, different culturally- and historically-specific power relationships. In other words, particular meanings enable particular groups of people to exercise power in ways that benefit them. They are able to do this because discourses constitute particular ways of being as normal, right, and therefore desirable (Davies, 1993). In other words, discourses institutionalise particular systems of morality. The power derived from this institutionalisation is hidden because the 'moral' nature of the preferred definition of normal, right and desirable ways of being precludes debate, therefore marginalising and/or silencing alternatives.

For instance, the particular meanings given to social categories such as 'girl' or 'boy' have an implicit moral sense within them of what is normal and/or right. In our society at this point in time, categories such as 'wimp' and 'sissy' are part of the discourse of being male, but they are rarely seen as desirable, normal, or right ways for boys to be 'boys'. This sense of what is right and/or normal is socially constituted and produced in discourse. We learn the 'right' way to be a girl or a boy through our involvement in the social practices which constitute our understandings of gender and which, therefore, demonstrate the existence of a moral system.

Therefore, for a post-structuralist, moral systems are more than just an individual's expression, or just some accidental and arbitrary occurrence. They exist because 'particular ways of speaking have been institutionalised, have taken on a life of their own, have, in fact, become constitutive of people and their actions' (Davies & Harre, 1990, p.3).

From a post-structuralist perspective, therefore, all ways of being have social and political implications. As Weedon explains:

> *How we live our lives as conscious thinking subjects, and how we give meaning to the material social relations under which we live and with which we structure our everyday lives, depends on the range and social power of existing discourses, our access to them and the political strength of the interests which they represent* (Weedon, 1987, p. 26).

Consequently, contradictory discourses about what is normal, right, and best circulate and compete with each other in a society at a given point. Some discourses dominate, resulting in certain moral systems becoming dominant at specific moments. This is not because some discourses are 'more truthful' or 'right' but because they have more political strength than others derived from their institutional location.

By way of illustration: In Pamela's world, no other discourses had as much social power as her own. Her own discourse on 'good girlhood' circulated predominantly in two institutions in her world: the kindergarten, via relationships with friends, and the family, via her relationship with her mother. She did not have ready access to any other ways of understanding Anne's play.

However, Pamela's discourse on 'good girlhood' is unlikely to make future early childhood teachers react to girls in the mud-patch by saying that they are 'naughty' and shouldn't go to birthday parties! She has, at present, very little opportunity to circulate her discourse within academic institutions and to establish her moral system as the more powerful one. However, developmental discourses like the teacher's do have a well established circulation and location in early childhood training institutions and are, therefore, likely to continue to influence teaching decisions about mud-play and notions of gender socialisation. Hence, teachers are likely to continue to base their sense of what are normal and/or right ways to be a child on these discourses, rather than on Pamela's discourse.

Thus, not all gender discourses have equal social power, because particular options about how to understand and practice masculinity and femininity are constantly reaffirmed institutionally. For example, the recent debate on gender in relation to accreditation highlighted the dominance within the media and certain sections of the Australian community of traditional views of masculinity and femininity and the moral force of these views. Every person's gender discourses will be influenced by the institutional and material power of those discourses.

So, for a post-structuralist, each understanding of being a girl that circulates in our society will be aligned with, and constitute, different power relationships. This preordains that some meanings will be marginalised or silenced by being positioned as abnormal, wrong, or undesirable. Which meanings these are depend on the social location and institutional power of discourses.

Subjectivity

The relevance to children's learning of understanding the power relations and dynamics between discourses derives from the way in which post-structuralists understand the role of discourse in constituting the individual. Discourse constitutes who we are: it constitutes our subjectivity. 'Subjectivity' describes who we are and how we understand ourselves, consciously and unconsciously. In post-structuralism, the individual is made subject by their constitution in language (and hence in discourse). So post-structuralists (along with many others) see language as the key to our creation of meanings. It is central to the way(s) in which our subjectivity is constructed.

It thus composes the ways in which we think, feel, act, desire, and speak. It constitutes what we

believe is normal, right, and desirable. For children, it thus constitutes the very foundations upon which they make choices about what to do, or not do, how to do it, and who to do it with. It defines the skills, knowledge, abilities, and dispositions they will, and can gain because of the limits specific discourses place on what is desirable, normal, and right to do, think, act, and feel and be.

In Pamela's instance, her discourse on girlhood provided her with a knowledge base which influenced her choice of friends, her use of motor skills, her choice of stories, and her choice of materials. Davies (1989b) identified four processes through which subjectivity becomes constituted in discourse and thus comes to constitute us as individuals. Tracing these processes in relation to Pamela's decisions illustrates the way in which Pamela was involved in learning a discourse, that then influenced her learning in other ways.

The four processes through which subjectivity becomes constituted in discourse involve:

1. Learning ways of categorising people, including ourselves.

For example, Pamela has been learning the categories of 'naughty' and 'good' girl. This learning formed the base from which she could take several of her decisions in relation to Anne and the mud-patch.

2. Participating in discourses and practices in which meanings are given to the categories we learn.

Pamela has been participating in relationships and practices in which meanings have been given to naughty girls — for example, they are girls who get dirty. Her relationship with her mother is part of the practices through which she has learnt this meaning. A discussion with Pamela's mother uncovered a recent event related to a party dress that suggests some of the practices through which she and her mother constructed an understanding of 'naughty girls'. She had got a very new, very white party dress dirty by making mud-pies with a friend during a birthday party.

3. Positioning oneself in a relation to the categories and meanings given to them.

Pamela had to decide how to position herself in relation to being a naughty girl — she decided on this occasion not to be a naughty girl.

4. Recognising the position taken and emotionally investing in the position taken.

Pamela recognised herself as 'not naughty' because of desires created through recent events with her mother. The desires involved significant emotional investment in not getting dirty again. But she also recognised the position because of the ways in which she had come to understand more broadly that good girls obey adult rules.

It was through these processes that Pamela and Anne each came to understand their worlds in the ways they did. These understandings then constituted their learning in very specific ways in relation to the mud-patch. Some of these were canvassed above, but they will be detailed at several points in what follows.

Discourse analysis: exploring the links between discourse, power and subjectivity

If discourses constitute, rather than reflect, reality, and if discourses constitute subjectivity, then the discourses that children experience will constitute their learning. So, to understand children's learning, we must identify and analyse these discourses. Consequently, discourse analysis is a central feminist post-structuralist tool for exploring children's learning.

Discourse analysis involves looking for patterns and connections in the ways in which we speak, think, feel, and act in our social world. However, because discourse is understood as constitutive of the individual and social structures, it also involves identification of relationships between individuals, social structures, and institutions. Hence feminist post-structuralist discourse analysis involves identifying four processes:

1. The specific ways of categorising people, including ourselves, that are constituted and expressed via language.

For example, in our society a fundamental way in which we categorise people in order to make sense of our social world is on the basis of gender. We use gender to provide an overarching framework in which it is possible to place every person, including ourselves. The frameworks through which we categorise people and ourselves constitute an initial phase within discourse analysis.

A post-structuralist analysis of learning in the mud-patch therefore involves identifying and analysing the frameworks through which the children categorised themselves and others. One specific system of 'person' categorisation was evident in a conversation held with Anne shortly after Micheal's final immersion. As part of a larger conversation, she was asked who she would consider her friends. She listed a number of girls. Micheal was not mentioned, despite the fact that the teacher had said that they were good friends.

When it was queried whether Micheal was a friend, Anne looked up quizzically and said he was a *boyfriend*. A *boyfriend* for her was a distinct category of friend. She was surprised that this distinction was not understood. Anne had learnt that there are boys and girls, but she had also learnt that very special categories are used to provide meaning to how boys and girls relate to each other. When boys and girls liked each other, and played with each other, they were not 'friends'. Friendship needed a gender qualifier. They were *girl*friends and *boy*friends. Their friendship with each other needed to be defined by their relations to each other as boys or girls. Their gender was a core and central issue in their friendship.

Hence, for Anne, on this day, gender was a category fundamental to the meaning she could give to their friendship. It was building her sense of how she believed the world of friendship could be, and should be understood. It was central to the language, and the meaning she gave to the language she was learning. It was fundamental to how she interacted with Micheal and the social skills she was practicing and learning. The category of gender provided an important framework through which to give meaning in her social world: it formed part of her discourse and the discourses in circulation in the mud-patch on this day, and it constituted several aspects of her learning.

2. The social practices through which meanings are given to the categories we learn.

Within feminist post-structuralism, a characteristic of discourse is that it is in, and via, social practices that we give meaning to the categories we learn to use to order our social world. Analysing children's learning therefore involves identifying the social practices through which children come to understand what is meant by the social categories that build their discourse. When learning to categorise oneself as a girl, such practices may range from clothing to gift-giving, including direct and indirect parental teaching about being a 'good' girl or a 'good' boy.

In the mud-patch episode, the practices in and through which meaning was given to the category 'girlfriend' are an essential phase of building the discourse that informs Anne's learning. Anne was

beginning to learn what 'girlfriend' means through a variety of social practices that constituted her daily life. Not all were instantly apparent in the mud-patch, but many emerged through the conversations with Anne about being a girlfriend that occurred on the same day. These conversations illustrate that her older sister was a girlfriend. She had recently 'broken up with' her boyfriend.

Anne's parents teased her about Micheal being her boyfriend and suggested that she and Micheal might marry at some later date. In being talked about and treated by her parents as Micheal's girlfriend, and in 'trying out' herself as Micheal's girlfriend, she entered into social practices which produced her meaning of the word. It is in, and through, those practices that she was constantly constituting her meaning of being a girl and, as part of this, being a girlfriend. For example, when she was Micheal's girlfriend in the mud-patch she had to 'wait for him'. She knew that girlfriends wait for boyfriends, because she said on the same day that they wait for telephone calls. The practices constituted her knowledge, her learning of this 'concept'.

3. The patterns of emotional meanings and investment in particular categories.

Since discourse constitutes emotions and the very embodiment of the self, one aspect of discourse analysis involves identifying *patterns of desire* associated with particular ways of categorising ourselves and others. Patterns of desire are the patterns of emotional investment involved in individuals placing themselves, and being placed by others, within particular categories through which they give sense to their lives. They provide the power behind what is learnt via discourse.

An illustration from the mud-patch. Pamela had a variety of social categories through which she could understand herself as a girl in our society.

Making being muddy a good thing.

For example, she could understand herself as a very feminine girl, a masculine girl ('tom-boy'), a naughty girl, a shy girl, a passive girl. Hence, while Pamela is constituted subjectively in and through the discourses in which she composes herself as a girl, she has agency within this to reposition and reconstitute her own subjectivity. Weedon explains it thus:

> *Although the subject in post-structuralism is socially constructed in discursive practices, she none the less exists as a thinking, feeling subject and social agent, capable of resistance and innovations produced out of the clash between contradictory subject positions and practices (Weedon, 1987, p.125).*

Feminist post-structuralism thus suggests that there is a choice for Pamela about how to position herself as a girl in her day-to-day life at kindergarten. Each choice had emotional consequences because of her own history of emotional investment in particular ways of being a girl. Her mother liked 'girls to be girls'. All her kindergarten friends were very traditionally-feminine girls. She played with them because they all shared a 'like' of Barbie dolls, a 'hate' of the mud-patch and an enjoyment of reading 'stories about pets'. In discussions with Pamela, it was clear that she had already well-developed patterns of desire that constituted her as a very traditionally-feminine girl. There had been little in her life that had challenged this particular way of being a girl. In her life, it was the normal, right, and best way to be a girl.

For Pamela to decide that a 'naughty girl' was one who 'didn't get muddy' might have been difficult but not impossible. However, she would have had to find sufficient pleasure in this positioning to override the emotional investment she had in not 'getting muddy'. She would have had to give up much of what she currently enjoys: wearing dresses, playing with dolls, and keeping clean. She would have to be prepared to battle with Mum, lose current friends, and face a great deal of uncertainty about what it might mean to be different from her current friends.

All of her existing patterns of desire made it most desirable for her to continue to be very feminine girl. It is what she had learnt to enjoy, how others related to her, and how she understood what was *right*. Hence her patterns of desire were formed in, and through, the *moral* systems within her gender discourses.

Therefore, identifying the categories used by children and the moral systems associated with them is an important dimension of examining patterns of emotional investment within a discourse. It provides a sense of why children begin to see themselves in the ways that they do and the strength of particular patterns of desire. To understand the gender discourses of Pamela and Anne and their influence on the children's decisions it is therefore important to focus on the moral systems (senses of what is right, normal and best) that constituted their patterns of desire, as it adds to our sense of the strength of these patterns.

Pamela's moral system was fairly obvious and non-contradictory. Not playing in the mud-patch was the desirable, normal, and right way to be. Anne's moral system was more mixed. She was caught at the crossroads of contradictory patterns of desire. These became apparent in a discussion held with her near the mud-patch around the time of Micheal's final immersion. She was asked why she had waited so long for Micheal to finish his mud-play. It seemed that she was not enjoying waiting for Micheal. She was fidgeting, asking him to leave, and telling him he had been in there 'long enough'. This indicated that she was experiencing something akin to frustration. Raising what seemed an obvious way forward, it was

suggested she could do something else while she waited for Micheal. She looked up with considerable surprise and said with great emphasis: 'I *have* to wait for him, he is my boyfriend. He might not love me if I go.'

Her tone indicated that the suggestion that she should leave Micheal's side was totally wrong. Staying by Micheal's side was clearly a problem, but leaving was also a problem. If she left, she would have to go against the moral system which informed her understanding of being a girlfriend. She felt that she might lose him if she redefined or moved outside of her sense of what was the best way to be a girlfriend.

Hence, it is through analysing patterns of desire that we can glimpse at the ways in which discourse comes so powerfully to constitute children's learning as it constitutes their choices about what they 'want' to do and whom they 'want' to do it with.

4. The social power relations and effects of different discourses (knowledge/power analysis).

Patterns of desire are constituted in, and through, the moral codes and social practices via which children learn the meanings of particular social categories. As mentioned previously, different meanings constitute different power relations because of the institutional location and circulation of specific meanings. Hence, to understand how and why particular patterns of desire predominate at a particular point in time in a particular culture, we need to link an understanding of moral systems associated with particular social categories within a discourse to analysis of the institutional location and power of discourses.

Hence, discourse analysis also involves identification of the institutions and social structures which circulate and integrate particular discourses and the implications of the social and political position of these. It is by locating discourses socially and institutionally in this way that we can learn:

> *... what power/knowledge relations constitute this field, how power is exercised, whose interests are silenced, marginalised or excluded and how it is open to change* (Weedon, 1987, p.169).

Thus, while there is some choice about who we become, our desires are shaped by the way in which powerful discourses circulate in, and via, social structures and institutions. This makes more possible some ways of being, and not others (Davies, 1989b).

Anne understood herself as Micheal's girlfriend. She had learnt the word, but along with the word was a history of meanings, relationships and emotions that constituted her understandings of the word. This was constituted by her relationships with her sister, her involvement in particular TV programs and a history of positioning herself as a 'normal' girl, who should do 'normal' girl things. For Anne, this meant that being a girlfriend involved feelings, desires, practices, and understandings. She should love Micheal, want to marry him and want to kiss him. She also had to 'hang around and wait for him' to finish his mud-play.

As she practiced and emotionally invested in this understanding of being a girlfriend, Anne was producing her own sense of what it meant to be a girlfriend. She was learning how to relate to boys as a girl. She was learning this within a discourse that had institutional and material power in her social world. It had prominence through her sister's practice of being a girlfriend, how her parents understood it and how it was practiced on TV. It had emotional power through the sense of being 'normal' that came from relating to Micheal in a way that was considered desirable and acceptable by those close to her.

Another option for Anne might have been to define her relationship with Micheal as oppressive and restrictive and as requiring her to subsume herself to the needs of a man, but this understanding and meaning was unavailable to her. Within the institutions in which she practiced her day-to-day life, no-one categorised boyfriends in this way, no-one emotionally invested in rejecting being a girlfriend, and no-one used categories such as 'oppression' to give meaning to her life with boys. They had no institutional base, no emotional or material reality, no discursive presence in her world.

So, while there were, and are, options for interpreting what it means to be a girl Anne could choose only within the options available to her. She could choose only from within the 'discursive repertoire' (Hughes, 1993, p.183) of the social institutions in which she lived and practiced her life.

Some implications for the children's learning in early childhood settings

Feminist post-structuralism suggests that children learn gender through their daily inscription in discourses and their active desire to make sense of themselves and others in a coherent and meaningful in, and via, these discourses. As Davies writes:

> *children must learn the ways of seeing made possible by the various discourses of social groups of which they are members. This is not simply a cognitive process of language learning, but also an ability to read and interpret the landscape of the social world, and to embody, to live, to experience, to know, to desire* as one's own, *to take pleasure in the world, as it is made knowable through the available discourses, social structures and practices (Davies, 1993, p.17).*

Gender discourses were evident in Anne's understandings and practices in several ways. Distinctions between girls and boys were fundamental to her learning in the mud-patch. They influenced how long she chose to stay in the mud-patch, what she was prepared to do there, whom she chose to play with in the mud-patch, how she chose to play with them, how other people (for example, Pamela and Micheal) related to her, and how she chose to define herself and her own behaviour. Gender discourse was fundamental in constituting her subjectivity and hence her learning.

Discourse analysis, therefore, is a critical part of the 'context' for understanding children's learning because discourse is seen as constitutive of the individual's subjectivity. If we use feminist post-structuralist ideas to analyse Anne's and Pamela's gender discourse, we come to an understanding of their decisions to limit their involvement in the mud-patch that offers some interesting challenges for early childhood practices.

The children's discourses: some challenges

From within the discourses available to Anne and Pamela, each produced their own patterns of desire about what it means to get 'being a girl' right. They took up positions within these discourses as their own. Each was active in interpreting and practicing these discourses to give them meaning. These meanings are now part of how Anne and Pamela actively constitute themselves.

Some of the ways they gave meaning to their lives you may feel comfortable with. Some you

may not. The way Anne understood being a girlfriend restricted her sense of herself as an independent decision-maker. The way Pamela understood being a girl readily dismissed much in the kindergarten that could enrich her learning.

So what to do about it? How can we change their understandings of being a girl? Feminist post-structuralism suggests that change will involve finding strategies to work against children's resistances, including the development of alternative discourses through which they can give meaning to their lives as girls.

Children's resistance

Trying to re-shape Anne and Pamela to be different sorts of girls is likely to meet with resistance because they have emotionally invested in who they are in ways that provide security and pleasure in their lives. They have become girls in ways that are associated with an understanding of what is best, normal, and right. For instance, Pamela's discourse on girlhood provided her with a clear basis on which to take several decisions that provided security and pleasure in her life:

- She could dismiss Anne as naughty and leave the mud-patch, fundamentally unchallenged by the fact that another girl was playing with mud and getting dirty.
- She could gain considerable pleasure from being a good girl, simply by not getting involved in the mud-play.
- She could choose her friends with ease. She said that Anne wasn't her friend "... cos she was naughty."

It also gave her the power to choose not to have Anne at her birthday party — a very important part of life at four-and-a-half years of age. It is one of the most important sources of power a young child has. Her sense of being right was powerful in constituting her decisions.

Alternative discourses

It is through discourse that we are constituted, and so change in how Pamela and Anne understand themselves as girls will occur only if they have access to powerful alternative discourses (language, meaning, practice, emotion, and social structures).

Strategies such as encouraging Pamela to play in the mud-patch will fail to create any long-term change in her sense of being a girl unless it is possible for her to emotionally invest in understanding mud-play in new ways. Mud-play needs to involve desirable associations with notions of 'normal' and 'right' ways to be a girl. It is likely that her friends and her mother will need to be part of this. It is also likely to take some time!

The adults' discourses: some implications

For feminist post-structuralists all discourses are implicated in power relationships (and hence institutionalised moral systems) that constitute gender relations in our society. In early childhood education, developmental psychology's discourses about children's learning are no exception. They have concrete social effects and, therefore, power effects. For instance, they influence how, when, and why we intervene in children's lives, and thus children's learning.

Feminist post-structuralism suggests that no one discourse on children's learning is inherently truthful or valid, but all constitute and are constituted by specific institutionalised notions of what is normal, right and desirable developmentally. Adherents of feminist post-structuralism believe that it is important to have a clear analysis of how discourses are structured, what power relations they produce and reproduce, and the implications of different meanings for existing social relations in order to

choose which discourses should be privileged. In other words, how we choose to understand children's learning in the mud-patch needs to be scrutinised not for its truth, but for the power relations it produces. While this is a lengthy and complex process, we can glimpse it through a final reference to the mud-patch.

Each of the adults in the mud-patch story had *their own* interpretations and understandings of events. What does this mean in relation to power relations it could produce in the mud-patch? At a general level, it means that the categories we used to interpret children's behaviour and what they were learning were implicated in what we did, or did not choose to do, about their learning, especially in relation to gender. For example:

1. Rebecca's view that Anne was a 'tom-boy' meant that she could look and delight in, her behaviour in the mud-patch... at least for a while. She did not need to do anything. However, it also meant that she found it difficult to explain Anne's contradictory behaviours. She felt that the teacher needed to do some more work on Anne as her socialisation into non-sexist behaviours was incomplete. So she believed that Anne could and should be changed via the teacher 'doing things' to her.
2. The teacher's view meant that she could delight in and monitor the learning that was taking place. She needed to intervene only if she needed to name some concept, or if the children were in danger through their actions. Their 'natural development' did the rest. She would use her power to influence children only if their behaviour transgressed her understandings of what constituted the 'normal' and the 'natural'. From her point of view, no change or intervention was needed in what was happening.
3. The researcher's view meant that she wanted to alter the power relationships between Anne and Micheal. She wondered how Anne could be given different ways of understanding her relationship with Micheal which would empower her to take more control over her decision and would offer her ways of enjoying life without constant reference to Micheal. As a teacher using these understandings, she would have decided to intervene to challenge in some way what she understood as a problematic relationship between the children. This could have included questioning both Anne and Micheal about how they were influencing each other's behaviours, how they felt about these, explaining how she understood what was happening, probing their reactions to this, and exploring alternative ways of acting with them. This would have momentarily disrupted the power relations, challenged the children's understandings, and provided information on how to plan future work with Anne and Micheal.

As a researcher, there is choice about how to make sense of the play in the mud-patch because of access to a range of different meanings through which to interpret the behaviour. Taking the feminist post-structuralist premise that no one meaning guarantees truth, there is a choice about which meaning to use in order to interpret the mud-patch play. A set of meanings, similar to the teacher or to Rebecca, could be used to interpret what was happening. How do we choose which meaning to privilege?

Feminist post-structuralism submits that, while there might be different understandings of the social world, it is possible to judge between them because of their political implications. For feminists, the choice is based upon the political implications for women and girls of the discourse.

To illustrate, in relation to the mud-patch: if the choice is to privilege a developmental discourse, such as that of the teacher, then the consequences are that we do nothing about the mud-patch play.

If we chose to use a feminist post-structuralist interpretation, then, because of its focus on the gendered power relationships between the children, we would need to act in some way. For a feminist, concerned with the implications of discourses for the lives and learning of young girls the choice must be for the latter.

Conclusion

We have looked briefly at moments in the lives of Anne and Pamela to illustrate one feminist post-structuralist approach to understanding children's learning. From within this approach the constitutive role of gendering within children's learning is emphasised. Feminist post-structuralism also indicates that the way in which we position ourselves in relation to discourses on children's learning will be implicated in how we feel, act, and understand our relationship as women within children's learning. It is a relationship that is discursively constituted, and constituting, and it has social effects on women's relationships with children and children's relationships with children.

Knowledge/power analysis reminds us that new meanings are often marginalised and discredited if they challenge hegemonic and other gender meanings. Perhaps that is why discourses of post-structuralism are just beginning to surface in early childhood education in Australia.

To what extent the challenges of post-structuralism, especially feminist post-structuralism, enter into our conceptions of the child, and hence our conceptions of early childhood pedagogies, will ultimately be constituted by, and constitute the politics of, pedagogies for the future.

[The differences and similarities within post-structuralism have not been detailed here. That project has been undertaken by many other writers, and if readers wish to explore this further they should refer to Fraser, 1990; Giroux, 1990; Sarup, 1989; Nicholson, 1990. The insights of specific feminist contributions have been used to build an understanding of what constitutes a fruitful and relevant feminist post-structuralist analysis of children's learning. This chapter has drawn primarily from Weedon (1987), with additional insights from Tong (1989), Walkerdine (1990; 1981), Davies (1990) and Fraser and Barkty (1992).]

References

Butler, J. (1990) *Gender Trouble: Feminism and the Subversion of Identity*. London: Routledge.

Davies, B. (1989a) *Frogs and Snails and Feminist Tales*. Sydney: Allen and Unwin.

Davies, B. (1989b) The Discursive Production of the Male/Female Dualism in School Settings. *Oxford Review of Education 5* (3), 229-241.

Davies, B. (1990a) Lived and Imaginary Narratives and Their Place in Taking Oneself up as a Gendered Being. *American Psychologist 25* (3), 318-332.

Davies, B. (1993) *Shards of Glass: Children Reading and Writing Beyond Gendered Identities*. Sydney: Allen and Unwin.

Davies, B. & Banks, C. (1992) The Gender Trap: A Feminist Post-structuralist Analysis of Primary School Children's Talk about Gender. *Journal of Curriculum Studies 24* (1), 1-25.

Davies, B. & Harre, R. (1990) Contradiction in lived and told narratives. *Research on Language and Social Interaction*.

Dehli, K. (1993) Women and Early Kindergartens in North America: uses and limitations of post-structuralism for feminist history. *Curriculum Studies 1* (1), 11-33.

Fraser, N. (1990) *Untruly Practices: Power, Discourse and Gender in Contemporary Social Theory*. Minneapolis: University of Minnesota Press.

Fraser, N. & Barkty, S. (eds) (1992) *Revaluing French Feminism: Critical Essays on Difference, Agency, and Culture*. Indianapolis: Indiana University Press.

Giroux, H. (1990) *Curriculum Discourse as Postmodernist Critical Practice*. Geelong, Victoria: Deakin University Press.

Hughes, P. (1993) *The Relations Between the Productions of Broadcasting Organisations, the Social Experiences of Audiences and the Meaning attached to Programmes, with Particular reference to Recent Institutional and Technical Changes in Mass Communication*. PhD. Thesis, London University.

MacNaughton, G. (1992) Equity Challenges to the Early Childhood Curriculum. *Children and Society 6* (3), 38–51.

MacNaughton, G. (1993) Gender, Power and Racism: A Case Study of Domestic Play in Early Childhood. *Multicultural Teaching 11* (3), 12–15.

Nicholson, L. (ed.) (1990). *Feminism/Postmodernism*. New York: Routledge.

Sarup, M. (1989) *An Introductory Guide to Post-structuralism and Postmodernism*. London: Harvestor Wheatsheaf.

Stubbs, M. (1983) *Discourse Analysis: The Sociolinguistic Analysis of Natural Language*. London: Blackwell.

Tong, R. (1989) *Feminist Thought: A Comprehensive Introduction*. Sydney: Allen and Unwin.

Walkerdine, V. (1981) Sex, power and pedagogy. *Screen Education* 38, 14–25.

Walkerdine, V. (1988) *The Mastery of Reason: Cognitive Development and the Production of Rationality*. London: Routledge.

Walkerdine, V. (1990) *Schoolgirl Fictions*. London: Verso Books.

Walkerdine, V. (1992) Progressive Pedagogy. In C. Luke & J. Gore (eds) *Feminisms and Critical Pedagogy*. London: Routledge.

Walkerdine, V. & Lucey, H. (1989) *Democracy in the Kitchen: Regulating Mothers and Socialising Daughters*. London: Virago Press.

Weedon, C. (1987) *Feminist Practice and Post-structualist Theory*. Oxford: Basil Blackwell.

CHAPTER FIVE

Children as theorists: Developing a Theory of Mind

Sue Dockett

Introduction

In his description of the cognitive development of young children, Piaget (1929; 1954) noted the 'pre-logical' or 'pre-conceptual' nature of children in the preschool years. From about the age of two, when they emerged from the sensorimotor period, to about the age of seven, when they entered the concrete-operational period, children were described largely in terms of what they could not do: they could not conserve, decentre, reverse mental operations, could not overcome egocentrism; and so on.

The Piagetian view of young children has been adopted widely, with many early childhood educators describing preschool children's cognitive development, in a global sense, as pre-operational. This reasoning, in turn, may be used to justify particular curriculum approaches within early childhood settings, or even to explain why some experiences are considered unsuitable for preschool-aged children. The global view advocated by Piaget, however, often fails to take account of the diversity of development that occurs for individual children, and in different areas of development.

Later research in the area of cognitive development confirmed that Piaget's rather negative view of the preschool years represents an underestimation of children's capabilities. In some instances, the use of different methodological approaches revealed competencies that had been overlooked previously. Donaldson (1978) and Dunn (1988), for example, have reported that children are much more likely to display competence in situations which are relevant and meaningful to them and which are based on their own experiences. As MacNaughton (Chapter 4) has suggested, young children's ability to interpret and make sense of their physical world is based upon their experiences, and, in turn, the meaning and interpretation attributed to particular situations and experiences contributes to children's future development and learning.

In some instances, issues that had been considered quite beyond the capabilities of young children have been investigated with surprising results. One of these areas relates to young children's developing theories of mind. Researchers investigating this area are interested in what it is that children know and understand about the mind and mental states. There have been several recent accounts of the theoretical bases of young children's developing theories of mind and descriptions of the capabilities of young children in this area. This chapter draws on a number of these, (Flavell, Miller & Miller, 1993; Gopnik & Wellman, 1992; Moses & Chandler, 1992; Wellman & Gelman, 1992) as well as on the results of the author's recent investigations in the area (Dockett, 1994).

Domain-general or domain-specific?

The Piagetian notion of cognitive development encompasses broad stages of development that may be applied across many different content areas. For example, the pre-operational stage is characterised by abilities, or inabilities, in areas such as understanding of causality, reality, number, time, and classification. The basic elements of pre-operational thought are reported to cover a broad range of areas, and are therefore regarded as domain-general structures (Wellman & Gelman, 1992).

While domain-general descriptions of cognitive development are attractive, in that a small number of general principles may be used to explain many developments, more and more research is reporting that specific domains are understood by

children at different times. For example, while children's declining egocentrism may explain many developments, it does not explain why even very young children may at times seem altruistic in their behaviour, or why they are sometimes able to take the perspectives of others. The finding that some domains are understood before others has resulted in suggestions that development is often domain-specific (Gelman & Baillargeon, 1983). Accompanying this move has been a focus on a number of different perspectives or frameworks for understanding and explaining development (Lambert, Chapter 6). One of these alternative perspectives considers young children's development of theories to explain and predict the actions of the people that make up their world.

A basic property of any theory is that it has the power to both explain and predict (Wellman, 1990). Theories may be very specific, for example, a personal theory that 'the telephone will ring when you are in the shower', or they may be more global, such as a theory of living things. In the context of this discussion, 'theory' is used to refer to a framework or global theory that provides the basis for the development of more specific theories.

Wellman & Gelman (1992) have described three foundational theories, described as 'certain bodies of knowledge that in turn frame or launch most later conceptual acquisitions' (p.340), that develop within the preschool years. These theories encompass: naive physics — a theory of the physical world; naive biology ó a theory of living things; and naive or folk psychology ó a theory of mental states and functions and their role in predicting and explaining behaviour. These are described as 'framework' theories, as they provide the basis for the development of future, more specific theories. The focus of the following discussion is young children's naive psychology — their theory of mind. Discussions of naive physics and naive biology are to be found in Gelman & Kremer, (1991) and Carey & Gelman (1991) respectively.

What is a naive theory of mind?

A naive theory of mind is sometimes referred to as a 'commonsense' psychology (D'Andrade, 1987; Forguson, 1989), as it forms the basis of our everyday interactions with others. Whenever we interact, we use our understanding of mental states such as perception, beliefs, desires, feelings and intentions to explain and predict actions. For example, if six-year-old Sally reads a book, we may explain her action by noting that she *wanted* to read it/ she *thought* it would help her/ she *needed* to look up something/ she *remembered* something about it/ she had an *idea* about it and so on. Although we know what we mean in these explanations, we rarely analyse what it means to remember, or to believe or desire something. In other words, we use a range of implicit, procedural knowledge about mental states in our everyday interactions.

It is this implicit understanding that young children are thought to develop from about the age of two years. By about the age of five, however, this understanding has been complemented by the ability to reflect upon and describe mental states, enabling children to realise that mental states are based on interpretations of the physical world, and that different people may represent and interpret the same thing in different ways. While there is debate as to whether the understanding of two-year-olds' is sufficient to constitute a theory of *mind* or, rather, more an ability to use mental representation (Perner, 1991), many researchers

agree that a process of theory construction and theory change occurs within the preschool period in relation to understandings about the mind (e.g. Astington & Gopnik, 1988, 1991; Forguson, 1989; Wellman, 1990).

Before considering how theory change accounts for the developments within this period, it is necessary to consider what it is that young children know and understand about the mind and how this changes within the preschool years. In reporting the developments that occur, many researchers adopt descriptors based on age. The same framework is used in this chapter, however, this use of age — as in the 'three-year-olds' theory of mind' — should be taken as a very general guide only. More important than the actual age at which children demonstrate these understandings are the processes by which these understandings develop.

Evidence of children's understanding is drawn from two areas: studies of children's spontaneous interactions with others in familiar situations, such as family or play settings, and studies using more formal interviews, where children are asked specific questions about particular objects and situations. The results from these studies are often complementary, as naturalistic studies focus more on everyday understandings — the implicit, procedural knowledge — while the formal studies focus more on the explicit, declarative knowledge of older children.

Within this research field, and within the following discussion, the terms *mental* and *real* are contrasted as a means of distinguishing between things which occur within the mind (mental) and things which occur outside the mind (reality). This is not taken to imply that mental entities have no reality, nor that there is no mental component to things that happen outside the mind. While the contrast may be portrayed more accurately as one between mental and physical entities, the conversations of children — and adults — tend to compare pretence and reality and appearance and reality, with reality being used as a synonym for actual, physical existence. It is in this sense that the term *reality* is used throughout this chapter.

Children's developing theories of mind

What do children under three understand of the mind?

Recent research (e.g. Meltzoff & Gopnik, 1993) has suggested that the origins of a theory of mind can be traced to early imitation, where infants are described as learning about people and things, and the distinction between them, through imitation. By the age of two, children have an awareness of internal states, but little or no apparent understanding of the process of mental representation. That they can engage in pretence, and refer to feeling states such as being hungry or tired (Dunn, Bretherton & Munn, 1987) is evidence that they use mental representation, but not that they consider representations as interpretations of the physical world.

By about the age of two, children use mental terms in their speech that relate to desire. Terms such as *want* and *need* are heard often, but these terms are not used exclusively in reference to mental state. In explaining or predicting actions, two-year-olds are most likely to rely on desires, so that actions are explained in terms of a desire to achieve a certain outcome. For example, the action of snatching a favourite toy is explained by

the statement 'Me want it!'. In a series of interviews reported by Wellman (1990), children in their third year of life were more likely to explain the actions of a character in terms of desire than in relation to beliefs. For example, in their explanations of the actions of a character (Jane) who was depicted looking in a bag, two-year-olds were more likely to describe Jane as looking in the bag because she wanted a lolly, rather than looking in the bag because she believed that there was a lolly in it (Wellman, 1990). While a focus on desires is characteristic of two-year-olds, older children — and adults — also use reasoning based on desire. As an example, during the present study (Dockett, 1994), several four-year-olds were heard to argue over certain pieces of equipment with statements such as 'Give it to me, 'cause I want it'.

Between the ages of about two and three, children are also partly aware of the role of perception in knowing. They realise, for example, that if an object can be seen, a person who is looking at it will see it. The same child will probably be able to hide an object from the view of another person (Flavell, Shipstead & Croft, 1978), but will not be aware that someone who has not looked in a container will not know what is in there (Pillow, 1989; Pratt & Bryant, 1990).

What do three-year-olds understand about the mind?

By about the age of three years, children use more mental terms in their spontaneous speech, including terms such as *know*, *think* and *remember* (Dockett, 1987; Shatz, Wellman & Silber, 1983). These terms are beginning to be used in ways that relate to mental states and functions, and in ways that show a clear distinction between things that are real (physical) and those that are mental. On several occasions during their play, three-year-olds explicitly contrast real and mental in their speech, such as when they comment 'It's not a real gun, just a pretend one', or 'Don't eat the sand, it's not a real cake, only pretend!' (Dockett, 1987.)

When asked about mental states and reality, children from about the age of three report that thoughts are not public, and that others cannot see our thoughts. In one study, three-year-olds reported that a boy who had a cookie could touch it and save it for later, but that this was not possible for the boy who had a thought about a cookie (Wellman & Estes, 1986).

Also from about the age of three, children show an improved understanding of perception, realising that perception is necessary for knowledge. For example, children realise that seeing, hearing, touching, or perceiving something in some way is the basis of developing understanding about that particular object, person, or event. These same children, however, generally are not yet able to report the source of that knowledge (Ruffman & Olson, 1989). Although these connections between perception and knowing are developing, there are a number of reported inconsistencies. For example, one group of three-year-olds reported that touching an object would enable them to tell what colour it was (O'Neill, Astington & Flavell, 1992). From about the age of three there is a developing realisation that some form of perception is necessary to find out about something. However, children remain unaware that certain types of information are conveyed only by specific sensory experiences (Flavell, Miller & Miller, 1993; Gopnik & Graf, 1988).

There are also varying reports that three-year-olds are aware of their own fantasy and imagination. In one study, (Wellman & Estes, 1986), children reported that the things they imagined did not really exist, while another

investigation (DiLalla & Watson 1988) reported that there remain times when, although children are aware that they are pretending, they become scared and afraid of that pretence. Harris, Brown, Marriott, Whittal & Harmer (1991), reported this latter pattern with four- and five-year-olds, where, even when many said that the 'monster' in the box was only pretend, they chose to avoid the box whenever possible. Woolley & Wellman (1993) have reported recently that while three-year-olds are aware that physical and mental entities are different, they tend to think that mental states accurately represent the world.

Up to about the age of four, children's understanding of belief is described as limited by an inability to hold a belief that does not match reality. That is, children are unable to conceive of something in a way that contrasts with or contradicts the way it is physically. For example, when a character is depicted taking a lolly from a bag, three-year-olds tend to state that the character knew the lolly was there: the character is reported to have a belief (the lolly was in the bag) that matches the reality (there was a lolly in the bag).

Beliefs and reality are assumed to be the same thing; hence children at this time are referred to as understanding only 'true belief' (Gopnik & Wellman, 1992). The idea that beliefs may misrepresent reality is not conceivable for many young children, nor is the idea that a person may act on the basis of a false belief (Perner, 1991; Wimmer, Hogrefe & Perner, 1988; Wimmer & Perner, 1983). At the same time, these same children are unable to realise that one object may have several different representations (Flavell, 1988) or that they may have had a different representation in the past (Astington & Gopnik, 1988). On standard tasks of false belief, appearance-reality and representational change, many preschoolers consistently respond in a way that indicates that they construct and work with only one mental representation at any one time. The representation that they currently have, and which is based on physical reality, is reported by these children to be the only representation that they have or have had.

When asked to explain actions, three-year-olds tend to rely on desires, explaining that 'he went to the shop because he wanted a lolly', while older children invoke both beliefs and desires in their explanations: 'he went to the shop because he wanted a lolly and he believed that the shop sold lollies'. Three-year-olds also rely on desire in predicting future actions: they predict that a desire that is not fulfilled will result in sadness, and that a fulfilled desire will result in happiness. At the same time, children are able to make accurate predictions about some aspects of perception, noting for example, that they or another may see something. They are, however, generally unable to realise that, even though the same thing can be seen by two people, they may represent it differently.

Theory of mind for four- and five-year-olds

Much happens in the period between three and five years. By about the age of five children are described as having a theory of mind that is representational. They become aware that their mental states are interpretations of and about objects, people, and events that have physical existence, and that these interpretations are the causes of our behaviour.

Most five-year-olds, but not most three-year-olds, are likely to realise that people will act on what they think or believe, rather than the way things actually are. Older children are more able to engage in cooperative experiences because they are aware of and able to acknowledge the

perspectives of others. They are also more able to engage in deception and lying, as they are aware of what it is that others are likely to believe or accept as believable: 'lying well requires knowing that others can have false beliefs and having some idea of which ones they are likely to embrace' (Moore & Frye, 1991, p.3).

By the age of four or five years, children are usually able to report false beliefs and the consequences of those false beliefs in terms of actions and future beliefs. For example, in a standard false belief task where a packet of Smarties actually contains buttons, they will report that, even though there really are not Smarties in the packet, it looks like there are Smarties and that someone who wants Smarties will go to the packet, believing that it contains Smarties. They will further note that the person will be surprised and disappointed, maybe even angry, if there are not Smarties in the packet, or pleased and happy if there are.

The important realisation here is an awareness that it is not the physical reality (that the packet contains buttons, not Smarties) that guides action, but our own individual interpretation of that reality (we expect the packet to contain Smarties). Although there are still a number of developments and refinements that will occur during the middle childhood years, this is an important and vital step. It is also a dramatic change from the understanding of younger children.

By the end of the preschool period, most children will realise that one object may have many representations, so that it may appear to be one thing, yet actually be another. They will also be aware that they may have held different, even false, beliefs about an object or event that they now represent in a different way. A greater understanding of the role of perception is also in evidence, with children having much more definite ideas about the sources of their beliefs and the types of information afforded by different sensory modalities (O'Neill, Astington & Flavell, 1992; Taylor, Cartwright & Bowden, 1991).

A brief overview of the developments discussed in this section is presented in Table 1. While this description of difference in theories of mind over the preschool period is reported as a series of generalisations, to which there will always be exceptions, this general pattern has been reported in a number of studies (for an overview, see Flavell, Miller & Miller, 1993; Moses & Chandler, 1992). The finding that such differences emerge in a range of cultural contexts, although at different ages, (Avis & Harris, 1991; Flavell, Zhang, Zou, Dong & Qi, 1983; McCormick & Olson, 1991) adds support to the notion that these differences are not merely artefacts of testing.

How does children's understanding of mind constitute a theory?

Framework theories have three defining characteristics: ontological commitments, where clear distinctions are made about the types of things that are relevant; coherence among constructs, where constructs are interconnected; and causal-explanatory mechanisms which enable the explanation and prediction based on the theory (Moses & Chandler, 1992). In a recent study of preschoolers' developing knowledge of and about the mind (Dockett, 1994), each of these characteristics was identified, albeit to varying degrees for different children.

Table 1. Overview of the development of young children's theories of mind

Characteristics of a theory of mind	*2-year-olds*	*3-year-olds*	*4–5-year-olds*
Aware of mental states:			
–pretence	•	•	•
–thoughts, imagination		•	•
–true belief		•	•
–beliefs as representations (false beliefs)			•
Use mental terms in speech:			
–desires	•	•	•
–beliefs		•	•
–contrast real (physical) and mental		•	•
Perception:			
–link perception with knowledge	•	•	•
–knowledge is based on perception		•	•
–specific perceptions as source of knowledge			•
Explanations and predictions:			
–based on desires		•	•
–based on desires and beliefs			•
Representations:			
–one representation that matches reality	•	•	
–multiple representations of one thing			•

Ontological commitments

To have a theory of mind, things that have mental entities need to be distinguished from physical entities. Mental states are, by definition, internal and subjective: my thoughts exist inside my head as my changing interpretations of reality. You have access to them only if I share them with you. This is different for physical objects, which are external, existing for all to experience, and unchanging (Wellman, 1985).

One means of gauging young children's ability to distinguish physical and mental states is to study their speech. Although children use mental terms such as *want* and *know* in their everyday speech from about the age of two years (Shatz *et al.*, 1983), not all uses of terms refer to mental states. For example, the child who approaches another shouting 'Know what?' is more likely to be seeking attention than referring to the mental state of knowing. Conversational uses of mental terms, such as the previous example, continue throughout life. However, from about the age of three, children clearly distinguish mental from physical in their speech, often contrasting mental entities with 'real' entities. This is particularly clear in pretence, where children regularly deal with pretence and reality, rarely showing any signs of confusion. The

child who tells another that she is 'not really dead, just pretending' is distinguishing reality from pretence. The distinction between pretend and real is clear in the following example involving two four-year-old girls:

Kirsty and Janet are in the kitchen area of family corner, sitting at the table.

Kirsty: Don't eat it really!
Janet is eating it really, and you can't because it's not real food, Janet!
It's *not real* food, it's *pretend* food!

Janet: I'm 'tending it is.

Other research has confirmed that, by about the age of three, children readily distinguish physical entities from mental states. In one study, three-year-olds could distinguish between a real dog and a thought about a dog, realising that a real dog may be patted, but that a thought about a dog could not (Estes, Wellman & Woolley, 1989).

Causality

When young children distinguish between real and mental, do they realise that the two dimensions are causally related? Do they realise that what we think, hope, or want is related to our experiences, and that these, in turn, are related to our mental states? We may, for example, believe that we will get a birthday present, based on our experience of receiving one last year. We may also experience disappointment, anger, or sadness if there is no present this time, or happiness if a present arrives. Our beliefs influence our actions, and our experiences influence our beliefs.

Beliefs and desires are both mental states. Both states are interrelated, as 'people engage in actions because they believe that these actions will fulfil certain desires' (Wellman & Gelman, 1992, p.351). While three-year-olds understand and make the distinction between mental and real, there is debate as to whether they understand both desires and beliefs as mental states. Certainly, young children understand desire and realise that desires are related to people's actions in the world. In a series of investigations, children reported that a character who was looking for her kitten, would look under the verandah because she wanted to find her kitten. These children were less likely to indicate that the character would look under the verandah because that is where she believed her kitten to be (Bartsch & Wellman, 1989; Wellman & Bartsch, 1988).

Children's frequent reference to desires in their explanations and predictions, as in the following examples, supports this point. The children involved are four-and-a-half-year-olds.

Max and Harvey are in the playground as pack-up time is signalled.

Max: *[to Harvey]* It's pack-up time, but I don't want to.
I want to get in the tunnel. *[Runs to tunnel, hides inside.]*
Joel is pounding dough at the table with a group of children.

Joel: Gimme that! *[Points to a plastic knife.]*
I want it. I just want it. I want a knife. *[Reaches over and grabs knife from Richard.]*
I just want it.

The use of beliefs to explain or predict actions tends to be less frequent, although in the following example Kay uses beliefs to explain Stephen's actions by noting that he 'thinks he's a monster' and is therefore 'acting like a monster'. Robyn's predictions about monsters also rely on beliefs.

Katherine, Kay, and Robyn are walking in the playground.

Stephen: *[Approaches, arms outstretched, growling.]*

Kay: Ahh, monster! He thinks he's a monster!
He's acting like a monster!
[Screams, runs away.]

Robyn: There's no monster. They don't come out in the morning.
Because they come out at night time. Just night time.
They think there's people gonna hurt them.
I don't know what sort of monsters, but.

If three-year-olds understand belief, it is suggested that this is limited to the idea of true belief (Wellman & Bartsch, 1988), where beliefs and reality match. For example, three-year-olds may believe that a character will look on the bookshelf because he or she thinks his or her toy is there, but will tend not to believe that the character will look there if the toy is not actually there. The notion that the mind may misrepresent reality is not generally grasped until the age of four or five years.

Starting at about the age of three, children also indicate an awareness that emotional states result from desires. Later, this understanding encompasses beliefs as well as desires. For example, some children have indicated that a person would be happy if they got something they wanted (desired), and that they would be surprised if something that they did not believe would happen, did happen (Wellman & Bartsch, 1988). While these findings support an early awareness of the concept of surprise, other researchers have reported that this develops at a later time (Hadwin & Perner, 1991; Ruffman & Keenan, 1993).

Coherence

While it is important to be aware of the distinction between the mental and the physical worlds, it is also necessary for the aspects of any theory to be interrelated, or to have coherence. For example, the idea that mental states are interrelated was noted in Tom's comment to his companion that 'You don't know. No, you don't understand, 'cause you don't know.' (Dockett, 1994.) For Tom, understanding and knowing were interrelated.

To assess the coherence of young children's theories of mind, Wellman and his colleagues have investigated children's abilities to predict action and make inferences based on information about beliefs and desires (Bartsch & Wellman, 1989); their abilities to predict emotional reactions based on the same information and a variety of outcomes (Wellman & Bartsch, 1988; Wellman & Banerjee, 1991); and the ability to infer a character's belief or desire based on either perceptual or physiological information (Wellman, 1990).

As in the previous examples, results of these studies indicate that, from about the age of three, children explain actions in terms of desires, occasionally referring to beliefs as well (Bartsch & Wellman, 1989). At about the same time, children reported appropriate emotional reactions from desires and beliefs. For example, they reported that having desires fulfilled resulted in a range of mental states, such as being happy. In the following example, Harvey also demonstrates an awareness that nonfulfilment of desires results in particular mental states, in this case the upsetting of his friend, Max. Harvey and Max are aged four-and-a half.

Max is building a block construction on the floor. Harvey joins him.

Harvey: Me back!
Max: *[In imitative voice]* Me back!
Harvey: *[Looks at M.]* You not my friend!
Max: I am your friend. You'll be my friend the next day. I know. I want to be your friend.
Harvey: Me not be your friend next day.
Max: Why?
Harvey: 'Cause.
Max: Why?
Harvey: Just 'cause.
Max: 'Cause why? *[Is close to tears.]*
Harvey: Just 'cause.
Max: Are you Malcolm's friend?
Harvey: Na.
Max: Are you Robert's friend?
Harvey: Na. Me not your friend neither. No-one's friend.
Max: No-one's friend? Why? Any friend?
Harvey: 'Cause I hate you!
Max: *[Approaches Malcolm.]* Malcolm, are you my friend?
Harvey's not your friend. Are you my friend?
[Follows Malcolm around room, still asking if he is his friend.]

Theories and theory change

After considering a range of data, Gopnik & Wellman (1992) conclude that 'the child's understanding of mind is helpfully construed as a theory' (p.146) in that it displays coherence, ontological distinctions, and a causal-explanatory framework. The same conclusion was reported in the study of preschool children's understanding of mind drawn upon in this chapter (Dockett, 1994), where each of these characteristics was identified.

Children use their theories of mind in much the same way as adults — to explain and predict the actions of themselves and others. Up to about the age of three, explanations and predictions are based primarily on desires. In the following few years, the concept of belief is incorporated into this framework. The move from a theory of mind based on desire to one which also accounts for belief displays characteristics of a theory shift or theory change.

While theories enable us to predict and explain a range of phenomena, the predictions made are not necessarily correct, so that even adhering to a particular theory does not guarantee correct interpretation or prediction. Theories are also open to challenge and replacement; when confronted with consistent evidence that is counter to the theory, theories are likely to change.

According to Gopnik & Wellman (1992) the process of theory change has several features. Initially, in the face of counter-evidence to the current theory, that counter-evidence is ignored. This is often seen in false-belief tasks. In the standard Smarties task described previously, where a Smarties packet really contained buttons, younger children consistently ignored the pictures on the packet and reported that the object looked like a packet of buttons and really was a packet of buttons. The same children made no reference to their earlier belief, when on seeing the packet for the first time they had all reported that it looked like a packet of Smarties and that they thought there were Smarties in the packet.

As the counter-evidence builds, children are reported to develop a number of 'auxiliary

hypotheses' that deal with the new information, yet do not alter the original theory. In the same false belief task this is exemplified by Joel's report that the Smarties packet looked like a packet of buttons. Other packets of Smarties, he added, looked like they had Smarties, 'but not this one' (Dockett, 1994). This child seemed to develop an hypothesis that this packet was different from all the rest.

As more and more auxiliary hypotheses are required, the original coherence of the theory is eroded, and the basis for the original theory is lost. Out of the old theory develops a new or alternative model for understanding relevant phenomena. In the false belief example, the old theory that determined that one object could be represented only in one way is replaced by a theory which allows for multiple representations of the same thing, so that the packet may look like it is a packet of Smarties, but actually be a packet of buttons.

Although the transition is gradual, the changes are dramatic. Younger children, while developing and using representational states, have little awareness of the nature of these states. Older children, in contrast, are more likely to understand the representational nature of belief and desire as well as the interpretive nature of the representational process.

Implications for early childhood educators

The results of the many investigations of young children's theories of mind mean that all those who interact and work with young children seriously need to question their understandings and expectations of those children. It is no longer sufficient to state that this child is in the 'pre-operational stage' of development. We need to understand clearly what it is that young children are capable of, and what this tells us about their development overall.

In relation to children's developing theories of mind, we need to be aware of some of the contradictions that characterise younger children's understanding of the mind and of the rapid pace of theory construction and theory change that proceeds as children abandon many of these contradictions. For example, if we are aware that up to about the age of three children have little or no recall of an earlier belief, there are implications in terms of their ability to lie or to deceive. The child who is describing a particular event for the second or third time, in a quite different manner from the first time it was described, may not be intending to deceive the listener: rather, they may have limited recall of their previous beliefs.

An awareness of young children's developing understandings of the mind and mental states may also make us more accepting and encouraging of the times that children refer to and reflect upon their own mental states or those of others. At these times, adults may provide a model of reflection, describing their own mental states, or encouraging children to describe and discuss their developing awareness of explanations and predictions based on mental states. Questions such as 'What made you think of that?' or 'Why do you think that might happen?' may provide opportunity and encouragement for children to develop metacognitive awareness.

Realising that young children are more capable than previously described does not automatically mean that they should be involved in more academically rigorous programs. Nor does it imply that all the research and conclusions reached by

Piagetian inquiry should be discarded. It does mean that our knowledge of young children and their cognitive abilities is changing constantly, and that we have a responsibility to be aware of and to respond to that changing knowledge. It also means that we need to challenge the basis of programs that are described as developmentally appropriate (Cross, Chapter 7; Fleer, Chapter 3), yet based heavily on Piagetian descriptions and interpretations of cognitive development.

While recent research confirms the belief of many early childhood educators that young children understand many ideas and issues, we need to be cautious in attributing adult-like understandings to these children. The development of a representational theory of mind is a significant and pivotal step in understanding both self and others, however preschoolers and adults still differ considerably in this area. Many more complex understandings will develop within the middle childhood years, with an adult-like conception of the mind possibly not fully in place until the adolescent years (Chandler, 1988).

In relation to cognitive development generally, Wellman & Gelman (1992) conclude that young children develop understandings in a range of specific domains, rather than in more general stages. 'Well before the start of formal schooling, children distinguish the physical world, the animate world, and the mental world and begin to reason appropriately about these three quite different realms of explanation' (p.366). The ascription of framework theories to young children requires a significant readjustment to the traditional Piagetian view of young children, as does the belief that young children's adoption and development of such theories 'shapes [the] acquisition of a rich set of specific understandings' (Wellman & Gelman, 1992, p.370). In keeping with this view, part of what underlies cognitive development overall may well be the adoption, and subsequent adaptation of, framework theories such as the theory of mind.

There are several areas that require much more research. For example, the naive psychology described in this paper is largely a product of Western culture. While elements of a similar understanding of mind have been reported in several non-Western cultures (e.g. McCormick, 1993a, 1993b), the nature of these understandings, the timing of their emergence, and their cultural relevance has yet to be explored in full. It may well be that this research identifies a number of universal elements that make up theories of mind, as well as a number of culturally-specific elements.

There are also some challenges to be faced by the early childhood profession. The framework adopted by educators in relation to explaining development will determine the approach adopted in creating developmentally appropriate programs. As a profession, we have to question and evaluate our current interpretation of what is developmentally appropriate and be prepared to change this interpretation based on new knowledge and research. A sound understanding of Piagetian theory, on its own, is no longer an adequate base for a developmentally appropriate program.

References

Astington, J. & Gopnik, A. (1988) Knowing you've changed your mind: Children's understanding of representational change. In J. W. Astington, P. L. Harris &D. R. Olson (Eds), *Developing theories of mind* 193–206. Cambridge: Cambridge University Press.

Astington J. & Gopnik, A. (1991) Theoretical explanations of children's understanding of the mind. *British Journal of Developmental Psychology*, 9, 7–32.

Avis, J. & Harris, P.L. (1991) Belief-desire reasoning among Baka children. *Child Development, 62,* 460–467.

Bartsch, K. & Wellman, H.M. (1989) Young children's attribution of action to beliefs and desires. *Child Development, 60,* 946–964.

Carey, S.& Gelman, R. (1991) *The epigenesis of mind: Essays on biology and cognition.* Hillsdale, N.J.: Erlbaum.

Chandler, M. (1988) Doubt and developing theories of mind. In J.W. Astington, P.L. Harris & D.R. Olson (eds), *Developing theories of mind* 387–413. Cambridge: Cambridge University Press.

D'Andrade, R. (1987). A folk model of the mind. In D. Holland & N. Quinn (eds), *Cultural models in language and thought* 112–148. Cambridge: Cambridge University Press.

Ditalla, L.F. & Watson, M.W. (1988) Differentiation of fantasy and reality: Preschoolers' reactions to interruptions in their play. *Developmental Psychology, 24,* 286–291.

Dockett, S. (1987) The role of animism in cognitive development. Unpublished M.Ed (Hons) thesis. University of Sydney.

Dockett, S. (1994) The young child's developing theory of mind. Unpublished PhD thesis. University of Sydney.

Donaldson, M. (1978) *Children's minds.* Glasgow: Fontana.

Dunn, J. (1988) *The beginnings of social understanding.* Oxford: Basil Blackwell.

Dunn, J. Bretherton, I. & Munn, P. (1987) Conversations about feeling states between mothers and their young children. *Developmental Psychology, 23,* 132–139.

Estes, D. Wellman, H.M. & Woolley, J.D. (1989) Children's understanding of mental phenomena. In H. Reese (ed.), *Advances in child development and behaviour,* 41–87. New York: Academic Press.

Flavell, J.H. (1988). The development of children's knowledge about the mind: From cognitive connections to mental representations. In J.W. Astington, P.L. Harris &D.R. Olson (eds), *Developing theories of mind,* 244–267. Cambridge: Cambridge University Press.

Flavell, J.H., Miller, P.H. & Miller, S. A. (1993) *Cognitive development* (third edition). Englewood Cliffs, N.J.: Prentice-Hall.

Flavell, J.H. Shipstead, S.G. & Croft, K. (1978) Young children's knowledge about visual perception: Hiding objects from others. *Child Development, 49,* 1208–1211.

Flavell, J.H., Zhang, X-D, Zou, H., Dong, Q.& Qi, S. (1983) A comparison between the development of the appearance-reality distinction in the People's Republic of China and the United States. *Cognitive Psychology, 15,* 459–466.

Forguson, L. (1989) *Common sense.* London: Routledge.

Gelman, R. & Baillargeon, R. (1983) A review of some Piagetian concepts. In J.H. Flavell & E.M. Markman (eds), *Handbook of child psychology, 3,* 167–230. New York: Wiley.

Gelman, S.A. & Kremer, K.E. (1991) Understanding natural cause: Children's explanations of how objects and their properties originate. *Child Development, 62,* 396–414.

Gopnik, A. & Graf, P. (1988) Knowing how you know: Young children's ability to identify and remember the sources of their beliefs. *Child Development, 59,* 1366–1371.

Gopnik, A. & Wellman, H.M. (1992) Why the child's theory of mind really *is* a theory. *Mind and Language, 7,* 145–171.

Hadwin, J.& Perner, J. (1991) Pleased and surprised: Children's cognitive theory of emotion. *British Journal of Developmental Psychology, 9,* 215–234.

Harris, P.L. Brown, E. Marriott, C. Whittal, S. & Harmer, S. (1991) Monsters, ghosts and witches: Testing the limits of the fantasy-reality distinction in young children. *British Journal of Developmental Psychology, 9,* 105–123.

McCormick, P.G. (1993a) African children's understanding of belief and evidence. Poster presented at the Biennial meeting of the Society for research in Child Development, New Orleans, March 1993.

McCormick, P.G. (1993b) Children's understanding of mind and emotion: A cross-cultural study. Poster presented at the Biennial meeting of the Society for research in Child Development, New Orleans, March 1993.

McCormick, P.G. & Olson, D.R. (1991). Quechua children's theory of mind. Paper presented at the Biennial meeting of the Society for research in Child Development, Seattle, April. Eric Document: 339507.

Meltzoff, A. & Gopnik, A. (1993) The role of imitation in understanding persons and developing a theory of mind. In S. Baron-Cohen, H. Tager-Flusberg & D. Cohen (eds), *Understanding other minds: Perspectives from autism,* 335–366. Oxford: Oxford University Press.

Moore, C. & Frye, D. (1991) The acquisition and utility of theories of mind. In D. Frye & C. Moore (eds), *Children's theories of mind: Mental states and social understanding*, 1–14. Hillsdale, N.J.: Erlbaum.

Moses, L.J. & Chandler, M.J. (1992) Traveler's guide to children's theories of mind. *Psychological Inquiry, 3*, 286–301.

O'Neill, D.K., Astington, J.W. & Flavell, J.H. (1992) Young children's understanding of the role that sensory experiences play in knowledge acquisition. *Child Development, 63*, 474–490.

Perner, J. (1991) *Understanding the representational mind*. Cambridge, M.A.: MIT Press.

Piaget, J. (1929) *The child's conception of the world*. London: Routledge & Kegan Paul.

Piaget, J. (1954) *The construction of reality in the child*. New York: Basic Books.

Pillow, B.H. (1989) Early understanding of perception as a source of knowledge. *Journal of Experimental Child Psychology, 47*, 116–129.

Pratt, C. & Bryant, P. (1990) Young children understand that looking leads to knowing (so long as they are looking into a single barrel). *Child Development, 61*, 973–982.

Ruffman, T. & Keenan, T.R. (1993) The belief-based emotion of surprise: The case for a lag in understanding relative to false belief. Poster presented at the Biennial meeting of the Society for Research in Child Development. New Orleans, March.

Ruffman, T.K. & Olson, D.R. (1989) Children's ascription of knowledge to others. *Developmental Psychology, 25*, 601–606.

Shatz, M., Wellman, H.M. & Silber, S. (1983) The acquisition of mental verbs: A systematic investigation of first reference to mental state. *Cognition, 14*, 301–321.

Taylor, M., Cartwright, B.S. & Bowden, T. (1991) Perspective taking and theory of mind: Do children predict interpretive diversity as a function of differences in observer's knowledge? *Child Development, 62*, 1334–1351.

Wellman, H.M. (1985). The origins of metacognition. In D. Forrest, G. Mackinnon & T. Walker (eds), *Metacognition, cognition and human performance*, 1–31. New York: Academic Press.

Wellman, H.M. (1990) *The child's theory of mind*. Cambridge, MA: MIT Press/Bradford Books.

Wellman, H.M. & Banerjee, M. (1991) Mind and emotion: Children's understanding of the emotional consequences of beliefs and desires. *British Journal of Developmental Psychology, 9*, 191–214.

Wellman, H.M. & Bartsch, K. (1988). Young children's reasoning about beliefs. *Cognition, 30*, 239–277.

Wellman, H.M. & Estes, D. (1986) Early understanding of mental entities: A reexamination of childhood realism. *Child Development, 57*, 910–923.

Wellman, H.M. & Gelman, S.A. (1992) Cognitive development: Foundation theories of core domains. *Annual Review of Psychology, 43*, 337–375.

Wimmer, H. Hogrefe, G-J. & Perner, J. (1988) Children's understanding of informational access as source of knowledge. *Child Development, 59*, 386–396.

Wimmer, H. & Perner, J. (1983) Beliefs about beliefs: Representation and constraining function of wrong beliefs in young children's understanding of deception. *Cognition, 13*, 103–128.

Woolley, J.D. & Wellman, H.M. (1993) Origin and truth: Young children's understanding of imaginary mental representations. *Child Development, 64*, 1–17.

CHAPTER SIX

Reasoning and problem-solving: Contemporary theoretical perspectives

Beverley Lambert

Introduction

The early childhood field in Australia is not renowned for its ability to initiate change, or to develop new directions or futuristic perspectives. It has always tended to be reactive rather than proactive. This is also true of the field's research, which, until 10 years ago, was of a conservative nature, marked by similar passivity and tentativeness. Now, however, research conferences and publications such as the *Australian Journal of Research in Early Childhood Education*, testify to the beginnings of a new era for research in the Australian field of early childhood. It is, in fact, an opportune time to reconsider the place of early childhood research, particularly since the field of developmental cognitive psychology is now far more open and flexible than it used to be.

Why is it now different? What changes have occurred? It has changed because the Era of the Great Theorists has now passed. The '60s and '70s was an era where a number of eminent theorists developed doctrinal theoretical models, often but not always named after themselves, which sometimes required, a dogmatic adherence by any researcher seriously interested in further exploring the theoretical perspectives involved. As such, researchers usually had to align themselves to a particular theoretical model. The Era of the Great Theorists was also the age of global, age related stage theories of human development, which, we shall see, is a presumption no longer accepted by many contemporary developmental theorists. At the time, however, particularly in the '60s, the Great Theorists certainly provided some important knowledge about human development, gained international respect for developmental cognitive psychology, and of course provided the bridge which enabled the development of current theoretical perspectives.

In their own way the Great Theories were very seductive and patriarchal. They were based upon Western cultural assumptions about normative development, and they always contained very clear signposts and concrete guidelines which were there to tell us what to expect from the highly sequenced descriptions of human development which were postulated. Research methodologies and analytical procedures were developed which were consistent with those assumptions. In carrying the research implications through to educational practice, the 'dogma' involved became very easy to see; teachers were often told exactly when, how and why to undertake sometimes, very specific educational practices with their children. The '70s in particular saw a proliferation of educational kits of various kinds, curriculum kits, and language assessment kits — all further examples of the influence of dogmatic theoretical models.

The Era of the Great Theorists has passed. Why, then, is so much of early childhood research still unnecessarily tied to outdated theoretical dogma? Why does the field continue to use their normative assumptions about cognition when a number of these have been legitimately questioned in international literature for about 20 years? It is time for the early childhood field in Australia to show its awareness of newer theoretical perspectives about cognition and to explore these systematically in our research. In this chapter two contemporary perspectives will be discussed — multidimensional perspectives and contextual psychology; and the implications of these theoretical frameworks for research in problem-solving will be addressed.

Contemporary Psychological Research

Contemporary psychological research no longer has to be aligned to 'theories' in the traditional sense and often tends instead to be based upon various theoretical 'perspectives'. Theoretical models do exist, only now they are more likely to be found in psychometric interpretations of intelligence. Traditional definitions of theory such as those described by Miller (1989) or Murray (1991) do not always apply to the newer theoretical perspectives about children's cognition. This fact is to the advantage of researchers because now they no longer have to follow theoretical doctrines but can take risks and break new ground. As well as theoretical *models*, there now co-exist theoretical *frameworks* or *perspectives*, all defining legitimate research options, and — because the once dogmatic adherence to 'the rules' has gone — all allowing for a range of research methodologies, analytical procedures, and, most importantly, outcomes.

The newer multidimensional perspectives of developmental cognition are flexible and dynamic, and are quite compatible with moves towards the 'contextualising of psychology'. The issue of contextual psychology is an interesting one, and one being thoroughly addressed by contemporary theorists (Cole, 1992; Demetriou *et al.*, 1993; Moss, 1992; Pintrich *et al.*, 1993; Reese, 1991; Rogoff, 1990; Rowe, 1988; Valsiner & Winegar, 1992; Winegar & Valsiner, 1992). Nevertheless we need to keep in mind that contextual psychology is not new. It was one of four key theories identified by Pepper in 1942 as a legitimate hypothetical framework for analysing development. The visual imagery and metaphors most often used to illustrate contextual psychology are weaving, a rope, and webbing. These clearly indicate the difference between this and more traditional types of research methodologies which give the appearance of being 'contextual' but are not. Research based upon factor analysis, for example, appears as a method of analysing development 'in context' where situational variables such as gender, age, and specific experimental variables are always considered. Contextualists, however, would argue that all this achieves is a view of subjects *and* their environment, not subjects *in terms* of their environments. Therefore all it presents is an aggregate of little pieces or parallel elements which remain separate. As such, contextualism does not refer to the individual and his/her environment (that is, merely two separate entities juxtaposed) but assumes the individual is *because* of his/her environment or context. In this sense 'context' is seen to mediate the influence of both environmental and innate variables. As such, context plays an active role in cognition which cannot be ignored. This recognition of the interrelatedness of factors is also a central element in understanding multidimensional perspectives of children's cognition and, more specifically, their problem-solving ability.

The notion of contextual psychology can easily be seen in children's theories of mind research. According to Piaget, three to four year olds were not able to consistently make objective causal inferences or reason about abstract states such as emotions. Certainly anyone who replicated Piaget's experimental tasks would come to the same conclusion today. However, newer knowledge about children's reasoning abilities and more sophisticated research procedures have shown that four year olds and some three year olds

can indeed make correct causal inferences between real and apparent entities provided that cognitive tasks are modified to be more developmentally appropriate and meaningful; the test situation is relaxed and informal (often incorporated into the children's play choices); the problem to be solved is considered relevant by the children; and the researchers' language is specifically designed to be meaningful and motivational to younger subjects (Flavell *et al.*, 1990; Lewis & Osbourne, 1990; Russell, 1990). Changing elements such as these in the experimental situation are examples of contextualising the research approach.

Multidimensional perspectives of cognition provide legitimate frameworks for research. Consequently, it is no longer necessary to cling to the apron strings of the Great Theorists, nor to the dogma of their theories. The newer approaches have evolved over a period of time during which researchers in developmental cognitive psychology questioned and scientifically debated some of the assumptions underlying previously accepted notions about cognitive development. Their questions provided an exciting challenge for others to reconceptualise the processes of cognitive development. In Australia it seems, sadly, that we are not rising to the occasion as well we might.

Multidimensional perspectives of cognition provide legitimate frameworks for research.

Questions challenging previous theoretical assumptions of cognition

Question 1

In 1985 Fischer and Silvern questioned a lack of flexibility in research methods used in cognitive psychology, and argued that most research methodologies tended not to acknowledge individual patterns of diversity as cognitive advancement occurs, but were geared more towards age related stage interpretations of development. 'It is misleading to speak in terms of stages without also noting the wide range of individual differences in development, and it is misleading to speak in terms of individual differences without noting the commonalities that occur across individuals.' (Fischer & Silvern, 1985, p.617.)

It is important to note that Fischer & Silvern did not attempt to polarise debate by presenting 'stages versus individual diversity' as an either/or issue, or as two dichotomies needing reconciliation. Compromises such as these would serve only to destroy the probity of one or other of these perspectives when in fact both are legitimate descriptions of development. Instead, Fischer & Silvern recognised the significance of both perspectives, hence their call for the use of a greater range of analytical tools to acknowledge different kinds of progress so that, firstly, all

pathways of development can be tapped, not just one; and, secondly, to prevent reductionist research approaches predominating whereby attention is mostly focused upon single cognitive principles or end products to the exclusion of processes. To this end they noted the need for more longitudinal studies and modified scalogram analyses to help trace individual pathways over time.

Longitudinal analysis would enable research to tap long term changes, and contemporary scalogram methods of analysis would identify short-term changes and individual variations which occur during the same time span. Using these approaches and others as part of a range of analyses would allow for a better acknowledgement of the multidimensional influences of context on development. They would facilitate interpretations of progress as advancement along a continuum, towards a range of developmental end points or outcomes, instead of just one, and in doing so, move onwards from older, stage-age interpretations of development.

These arguments are still being raised and debated in research literature (Case & Edelstein, 1993). Enmeshed are the old issues of organismic versus mechanistic assumptions about development, competence versus performance, and age related stage theories versus local stage theories and domain specific theories. Other theorists have since entered the debate (Bickhard, 1992; Case & Edelstein, 1993a; Fischer *et al*., 1993; Lautry, 1993). However, in this search for a more contextualised and individualised interpretation of children's cognition, there has been a lamentable lack of early childhood researchers actively involved until only very recently. This particular arena is most definitely one which pertains to the field of early childhood and to which it should have contributed. Nevertheless, fortunately for the Australian and international early childhood fields, the key researchers were some of the world's most reputable and proficient psychologists and social psychologists.

Question 2

The assumption that development occurs through an invariant sequence of age-related stages has been legitimately questioned. Global stage theory, based upon presumptions of normative development relevant only to modern, industrialised, Western cultures (which, together as a subgroup we need to remind ourselves, constitutes a minority of the world's population — not a majority), is, as a single theory of human development, inadequate. Such a theory does not consistently acknowledge individual diversity including, among other factors, cultural or socio-emotional influences on children's thinking and reasoning (Flavell, 1971; Miller, 1989; Santrock & Yussen, 1992; Wood, 1988), that is, that variations do occur and what these alternative developmental pathways might look like.

Question 3

The assumption that cognitive advancement occurs as a tightly sequenced linear hierarchy of steps, with the top step being the most complex end point (note the use of singular form, there is rarely more than one developmental end point defined), has also been legitimately questioned. It is now understood that conceptual development tends to occur synchronously, often across domains. Contemporary theoretical discourse includes imagery and metaphors such as networks, webbing, weaving, scaffolding, nodes, or related modules to describe the almost multidirectional conceptual frameworks which, it is claimed, develop. Multidimensional views of cognition such as information processing (Case, 1985; Siegler,

1986), and other metacognitive perspectives (Bickhard, 1992; Campbell, 1992; Case & Edelstein, 1993; Demetriou, 1988; Flavell *et al.*, 1992; Perkins *et al.*, 1993; Perner, 1992; Sternberg & Okagaki, 1989) now view cognition as consisting of a diverse collection of independent processes generating around the acquisition of problem-solving strategies across different domains, where progress can occur in diverse directions and where there can be a range of possible outcomes.

Together, these three questions constituted a marked turnaround in the way theorists perceived cognitive advancement to occur. Multidimensional perspectives as a theoretical framework for research into children's cognition will be considered in light of this turnaround and will be followed by two specific examples of contemporary interpretations of children's cognition which best illustrate, to use Fischer & Silvern's words, a re-conceptualisation of the processes of reasoning and problem-solving ability in children.

Multidimensional perspectives

Multidimensional perspectives acknowledge that cognition is a reflection of many varied influences; that is, a part of the surrounding contexts in which it occurs. It is a generative approach allowing for the integration of a range of theoretical perspectives (Demetriou, 1988; Demetriou *et al.*, 1993; Case & Edelstein, 1993; Fischer & Silvern, 1985; Langford, 1989), therefore liberating researchers from the dogma of the Great Theorists. As such, traditional methodologies can be used in conjunction with contemporary approaches. Factor analysis for example, could be used along with individual pathways analysis (POSI — Partially Ordered Scaling of Items) recently developed at Harvard University (Fischer *et al.*, 1993). Both qualitative and quantitative analyses would have a role to play. Longitudinal analysis facilitates a better knowledge of how progress occurs over time for individuals, and so would help to tap patterns of diversity as cognitive advancement occurs. In this way the questions raised by Fischer and Silvern about statistical methodology would begin to be addressed.

Multidimensional approaches are not based on *a priori* assumptions about development; therefore they do not expose research data to the risk of being 'made to fit' pre-existing theoretical models. Because of this, they are flexible and can acknowledge the integration or overlapping of developmental domains. Development is seen as a multidirectional process which, therefore, would logically encompass individual variations, progression/regression fluctuations, and socio-cultural influences. Progress can thus be defined in a range of ways, which might include stage-like patterns, simple-to-complex progressions, linear hierarchies, clustered or synchronous forms. Or other patterns may well be identified. Because of this, individual diversity can be acknowledged as well as group developmental patterns. In this way, multidimensional perspectives provide a more ecological view of cognitive advancement. In doing so, they answer the concerns raised in the second and third questions previously identified in this chapter.

Multidimensional approaches are especially compatible with research of an *ex post facto* nature where variables are not directly manipulated by the researcher, as often occurs in clinical, laboratory testing situations, and when no or few *a priori* assumptions are made about likely end products. Kerlinger defines *ex post facto* research as 'that research in which the researcher starts with the observation of a dependent variable

or variables. He then studies the independent variables in retrospect for their possible relations to, and effects on, the dependent variable or variables' (1986, p.360). In research of this nature the main purpose is for the researcher to establish functional relationships among naturally occurring variables, usually after observational data is collected. By their nature, *ex post facto* studies require an open methodological framework; thus they tend to be particularly suited to the application of multidimensional descriptions of development.

In the following section, two of the newer theoretical (multidimensional) perspectives on children's cognition — frameworks perspectives and dispositional cognition will be considered. How multidimensional approaches such as these relate to research issues involved with young children's problem-solving ability will also be discussed.

Frameworks perspectives of developmental cognition

Frameworks interpretations of cognition describe conceptual development as an integrative network which spreads across domains. A pattern of webbing is supposed to occur as coherence develops among conceptualisations in different knowledge domains. Wellman & Susan Gelman (1992) describe the frameworks perspectives of cognition as consisting of the development of a meaningful network of core understandings which ultimately become a meaningful frame of reference for causal reasoning and problem-solving. Theory of mind cognition, which Dockett has addressed earlier in this book, is an example of frameworks interpretations of cognition. Increasingly, those involved in this kind of research acknowledge the naturally occurring contexts which mediate children's ability to reason and which, therefore, become a part of the intellectual framework children use. Dockett's research in the area of children's spontaneous dramatic play attests to this contextual approach. As well, however, theory of mind cognition provides an example of one of the 'core understandings' or network linkage points which are, according to frameworks perspectives, a part of children's intellectual structures. The appearance versus reality knowledge domain could be considered as a core understanding consisting of an ability to use false belief reasoning; recognition of true as opposed to apparent emotional states; and — overarching these — cognisance of abstract verbs such as *know, pretend, think, guess*, and so on. This cluster of understandings would affect children's problem-solving abilities across a range of knowledge domains, and therefore could be expected to manifest itself throughout their play activities. Rochelle Gelman & Greeno (1989) support the notion of conceptual webbing or frameworks perspectives in their descriptions of cognitive structures as consisting of 'skeletal sets of principles' or 'ghost networks'. Their definition, and the metaphorical expressions they use to illustrate it, describe sets of principles which may be latent and not actualised in the child's mind. Certain environmental influences are required to trigger the framework to function and develop new connecting points. Context is important here.

In an earlier chapter Elliott focused upon processes of scaffolding in children's learning. Cognitive scaffolding and, more recently, Bickhard's (1992) notion of self-scaffolding are

another example of frameworks perspectives. Scaffolding refers to the development of reasoning and problem-solving as interactive processes where related conceptual networks develop which either consolidate and lead to more advanced framework connections or are selected out and rejected. The network continually stretches or shrinks, and there can be much internal movement.

Contemporary interpretations of cognitive scaffolding provide a good example of both multidimensional approaches and contextual psychology. They also provide an excellent example of how and why the theories of the Great Theorists should be placed — reverently but nevertheless, firmly — on the history shelves. For example, Vygotsky's (1978) idea of scaffolding as per the zone of proximal development presents notions of cognitive scaffolding based upon a presumption that knowledge becomes internalised. Presumably, if it needs to become internalised, it is believed to be external to the individual to start with. However, Bickhard's (1992) theory of functional self- scaffolding is based upon a presumption that the networking or scaffolding process is constructed internally. Clearly the argument has moved on from the initial contribution made by Vygotsky. A similar conclusion can be drawn when Bickhard's arguments are compared to Piagetian theory. It could perhaps be argued that the self-constructivist nature of functional scaffolding should be placed alongside constructivist cognitive theory, because of the ability of the scaffold framework to change by varying, selecting, extending, or rejecting knowledge. However, Bickhard argues that this continuation of internal movement and the multidirectional pattern of the developing framework of understandings is not at all consistent with Piaget's global stage theory which posits cognitive development primarily as a sequential linear hierarchy. Once again, it is possible to see that the theoretical debates have well and truly moved past the original contributions made by the Great Theorists.

Dispositional cognition

The second of the two newer theoretical perspectives to be considered is that of dispositional cognition. This perspective has been developed by Perkins, Jay & Tishman as part of Project Zero at Harvard University's Graduate School of Education (Perkins *et al*., 1993). These researchers are developing a theory about reasoning ability based upon recognition of dispositions as a major influence on cognition and problem-solving ability. Perkins *et al*., postulate a triadic dispositional framework consisting of *inclination* (which refers to motivation), *sensitivity* (which refers to cognitive receptivity), and *ability*.

The role of dispositions in thinking has been addressed by previous researchers, and Perkins *et al*., acknowledge and discuss this. They argue that these studies are too narrow, however, and present only a one-dimensional view of reasoning because they are usually based upon a narrowly paired association between a specific disposition and a specific cognitive capacity. Dispositional cognition then, according to Perkins, Jay & Tishman, raises questions about more traditional ability centred theories. Because of the overlapping nature of the three major dispositions and recognition of the influence of motivation and values on children's reasoning ability, their theory lies well within the realm of contextual psychology.

Perkins *et al*., have gone further than other dispositional cognitive debaters and clearly outline 'seven key dispositions for good thinking'. These

are outlined in Table 1. They define each disposition in terms of the three main elements mentioned previously — inclinations, sensitivities, and abilities. As such it is an integrative, multidimensional and contextual framework which inclusively allows for the recognition of factors of culture and gender, among other influences.

The 'dispositionalising' of previous triadic theories of reasoning is of special interest to the area of young children's problem-solving because it provides a framework from which researchers can focus upon the child's actual and changing abilities, rather than upon *a priori* assumptions about a single hypothesised end point which may ignore processes. This is of significance for early childhood researchers since it enables the identification of the things that influence children's inclinations to problem solve in certain situations, and demonstrates how receptivity can be fostered. It would facilitate an understanding of the relationships among children's ability to explore and investigate, recognise cognitive conflict, and be motivated to act, as well as how these processes might vary in individual children.

Dispositional cognition is best understood if applied to the practical situation. The main components of this theory are inclination, sensitivity, and ability. For example, imagine that a teacher's goal might be for a child to 'clarify and seek understanding': this is one of the seven key dispositions identified by Perkins *et al*. To foster the necessary *inclinations*, one would need to provide children with active, discovery learning experiences set up attractively in order to encourage their propensity to trial, retrial and question independently. Arranging the learning setting as it relates to individual learners is of paramount importance here; that is, context or the contextualising of learning is essential. In acknowledging the degree of *sensitivity* (or cognitive receptivity) needed for a particular child, the teacher would need to be aware of sensitising the learner towards things like: being persistent, becoming inclined to question things, being able to defend a viewpoint, having a positive self-image as an achiever, and so on. In order to facilitate the relevant cognitive *abilities* the teacher could look at encouraging children to make comparisons and look for connections among ideas, to become observant and articulate observations, to think in terms of cause-and-effect relationships, to develop directional and specific questioning strategies, and so on.

Table 1: Seven dispositions required for 'good thinking'

1. To be broad and adventurous
2. To have sustained intellectual curiosity
3. To clarify and seek understanding
4. To be planful and strategic
5. To be intellectually careful
6. To seek and evaluate reasons
7. To be metacognitive

Each of the three dispositional spheres — inclinations, sensitivity, abilities — commands planning by the professional educator in order to fuse them meaningfully for individual learners during the learning process. This process of fusing must logically contain the flexibility needed to incorporate cultural and other variables. This fusing process is what distinguishes Perkins, Jay & Tishman's theory from older, more ability-focused theories of thinking, which nevertheless do acknowledge the role of dispositions. The fusion also brings dispositional cognition under the umbrella of multidimensional and more contextualised psychological perspectives.

Issues for research in children's problem-solving

Socio-emotional Factors

Tudge (1989) found that, even when children had higher levels of problem-solving ability than a partner they were paired with in a problem-solving situation, they tended not to score well on follow-up problems if they were lacking in self-confidence. The image of oneself as a competent achiever may well be a mediating factor in children's problem-solving abilities, especially in collaborative learning situations, and as such must be considered a significant element of the learning context.

Culture

One highly questionable ethical assumption of most research into young children's problem-solving ability is that, in the past, modern (industrialised) Western definitions of normative development, and assumptions about specific developmental outcomes, have predominated. It is well understood that cultural variables cannot be ignored when focusing on problem-solving abilities in social settings, and a classroom or early childhood centre is indeed a social setting. For instance, in a white Anglo-Saxon culture, we might assume that a good problem solver should actively negotiate ideas, use a minimal degree of social conflict as part of the negotiating process if engaged in social-cognitive problem-solving, assert one's ideas verbally, and so on. Teaching approaches to foster these kinds of skills would be adopted. But in some cultures such a questioning approach to learning would be considered offensive. It may also be assumed that it is important to break down gender barriers. Therefore, mixed gender problem-solving situations may be set up so that children could work cooperatively towards reaching a consensual solution. But in some cultures mixed gender groups are taboo. If other aspects of the cultural context — such as parental expectations about the child's role as learner, the importance of education for boys and girls, urban/rural life background, gender, and religion — are added, it cannot be denied that cultural contexts mediate the processes of problem-solving in children. Therefore, research methodologies must be varied enough to recognise this.

Gender

A (male) university colleague was critical of the inclusion of gender to this discussion on the grounds that 'gender issues are now passé — aren't they?' There are three things worth noting on this point. Firstly, few research studies have investigated this variable with regard to the problem-solving ability of younger children. Secondly, a previous longitudinal study focusing upon the problem-solving strategies three year olds use in their spontaneous, uninterrupted play with coloured table top blocks (N=50, equally divided into boys and girls), found that at three years of age the girls' problem-solving abilities were significantly better than those of boys (for girls X^2 (2, N=25)=8.770, $p < .05$, for boys X^2 (2, N=25=3.001, $p > .05$). At four-and-a-half to five years of age, 12 months later, the pattern was reversed (Lambert, 1991). Thirdly, a more recent study by Smith & Inder (1993), focusing upon interaction styles in same and cross-gender preschool children's peer groups, shows significant

gender differences exist in the spontaneous verbal and play interaction styles used by girls and boys. Therefore it seems likely that this has implications for the ways in which boys and girls would collaborate in either same or cross gender groups when problem-solving. No, the gender issue is definitely not passé!

The social context

Research studies which focus upon social cognitive (collaborative) problem-solving behaviours often use randomly matched dyads where an expert is matched with a novice or learner. The expert may or may not be chronologically older. However, Asmitia & Perlmutter (1989) question this usual procedure and suggest instead that, for younger children, spontaneous peer friendship groups might provide a more beneficial context for promoting social-cognitive problem-solving abilities. This is largely because the social relationships and the communicative network already exists in friendship groups and provide the means for debate and opinion swapping. Previous studies using randomly matched dyads report that often, not a lot of real collaboration or negotiation occurs, because the expert tends to dominate and the novice tends to follow and imitate the other's lead, even in situations where the level of cognitive difference between the pairs is not great (Asmitia & Perlmutter, 1989; Gauvain & Rogoff, 1989; Phelps & Damon, 1989). Therefore it seems that using randomly matched dyads may actually serve to de-contextualise the social setting for social-cognitive problem-solving, and that the use of friendship groups may be a more appropriate procedure with younger children provided there exists a range of knowledge levels in the friendship group, some of which need to be higher than the target child's.

The relationship of social (collaborative) problem-solving to individual problem-solving needs to be addressed with regard to younger children. Asmitia (1988) suggests that for preschoolers, solitary problem-solving situations can be beneficial. Her results indicate that social-cognitive problem-solving dilemmas are useful to facilitate progress to a higher level of operating only, and that once there, "interaction becomes less instrumental for learning and children can affect their own progress." (1988, p.95). It appears that a combination of the two should be used to facilitate higher level operations in preschoolers and that educators need to be carefully selective about when to use which approach.

Verbal discourse

Children's use of verbal discourse as a mediator in social problem-solving dilemmas is not a new research issue. It was certainly impressed upon the early childhood field by the Great Theorists, some more that others. However, I am suggesting is that it can be pursued without having to embrace a Vygotskian or Chomskyian framework and, therefore, can be oriented more towards contemporary perspectives. There is a need to analyse and monitor children's verbal exchanges when they are engaged in problem-solving. Does their language involve knowledge exchanges, a degree of debate and opinion swapping, or the ability to articulate the problem. Similarly, what are the gender differences and cultural differences?

Ability to recognise the cognitive contradiction

One aspect of children's problem-solving which is not consistently accounted for in research methodology is the need to acknowledge that the child can identify problems or cognitive contradictions. Piaget drew attention to this

important aspect of problem-solving (Piaget, 1974), and it has been explored in much post-Piagetian research where children have been trained to recognise cognitive contradictions before attempting traditional Piagetian problem-solving tasks (Doise & Mugny, 1984). This issue is of relevance to all cognitive theories, however, and can be pursued from outside a Piagetian perspective. Young children simply may not be able to see that a mismatch of information has occurred or they may not recognise that a problem exists. Researchers need to address this aspect and, where social-cognitive problem-solving is being used, ascertain whether or not there is a consensus among the group as to what their goal actually is. There are two main kinds of cognitive contradictions: those that occur within different knowledge domains — intra-domainal conflict — and those that occur between knowledge domain/s and the environment — enviro-domainal conflict. It can be presumed that preschoolers in early childhood centres who, in Western culture, rely upon play as the main medium for learning, will therefore tend to experience enviro-domainal conflict. This assumption is supported by Hart's research into cognitive contradiction (Hart, 1982). If so, because of its more concrete nature, the problem or cognitive contradiction should be more likely to become tangible to the child's mind, or actualised as Piaget (1980) described it. This, in turn, means the child should be able to begin resolving the problem. However, because we can only use the word 'should' here, it is essential that research on problem-solving acknowledges if 'the problem' is initially recognised by the child.

The environmental context

The supportiveness of the setting and the appropriateness of the problem-solving dilemma are important contextual factors mediating children's ability to reason and problem-solve. For younger age groups, social/cognitive problem-solving experiences seem to be more successful when an active process of exploration, inquiry, and hypothesising is involved, and when more than one solution is possible. Phelps & Damon (1989), in a study with fourth graders, found that tasks which had a reproductive focus and required mostly convergent thinking abilities such as building a certain structure from a model, tended not to be as beneficial to the development of higher levels of reasoning. Considering the more concrete learning approaches of younger children, it seems there could well be a parallel here in that the cognitive mismatch or 'the problem' may better present itself to the child's mind if contextualised into the child's play goals and, also, if a range of solutions were possible. English (1991) found that for younger children, cognitive advancement can occur during the process of problem-solving if the context is meaningful and if the children are able to actually invent new strategies. English suggests that, in order to achieve this, learning tasks should offer the freedom to identify alternative solutions, justify solution strategies, and generate new problem situations.

It would appear then that naturalistic, observational studies would provide a more meaningful context for research with younger children than withdrawing children into an unfamiliar laboratory setting where they are tested, often using unfamiliar materials.

The concepts tested

Considering both the previous point and current beliefs about the more synchronous, integrated nature of cognition in the early years, one might question the appropriateness of research and teaching approaches which focus upon one specific concept at a time. The usual example

would be a maths or science concept. For example, the illustration of a teacher utilising the block area to 'teach' about mass/weight, or a researcher who would use blocks to research children's concepts of mass. In the light of what is now understood about patterns of conceptual development, this traditional approach should be questioned and criticised for 'decontextualising' the knowledge area to be investigated. Knowledge does not consist of specific and separated units of knowledge but of clustered networks which overlap and interrelate. Research and teaching approaches which pivot on content-specific concepts are also inconsistent with theories of children's play which repeatedly note its integrative nature (Krasnor & Pepler, 1980; Smith et al., 1985; Smith & Vollstedt, 1985). Play does not consist of functionally different bits of play such as maths play or literacy play. Therefore if we present context specific problem-solving dilemmas to preschoolers using the medium of play, which merely serve to impose specific units of information into their minds, we may not be presenting them with problems which typify either their play approaches or the way they think. As such, the research content can unwittingly decontextualise children's ability to reason and problem solve. Putting it crudely, if children reason and play via core understandings then curricula should target those core understandings. It would appear that the traditional use of separate curriculum areas of knowledge is open to criticism.

Conclusion

Multidimensional approaches in cognitive research have led towards an increased concern over which methodological and statistical research procedures are more appropriate. Incorporated in this is a growing recognition of the need to identify patterns of diversity in developmental pathways. This dilemma is currently being addressed by such eminent researchers as Robbie Case at Stanford University, Kurt Fischer at Harvard University, Wolfgang Edelstein at the Max Planck Institute for Human Development and Education in Berlin, Anik de Ribaupierre at the University of Geneva, and others (Case & Edelstein, 1993). Researchers such as these by no means discount the existence of stage-like developmental patterns, but are now attempting to focus also upon the noticeable range of individual diversity that occurs concurrently during long term progress. Individual pathways analysis allows researchers to investigate short term variations at specific points in the continuum of development. Longitudinal analyses allow greater concentration on the continuum itself. Both are important. These new perspectives describe cognition as it occurs within an ecological continuum rather than as an hypothesised end product irrespective of context, and considered merely alongside one or more independent variables but not as part of them.

The implications for educational practice are challenging. Wellman and Susan Gelman argue 'if children acquire core understandings of certain domains then experimenters succeed only when they tap those core understandings' (1992, p. 367). Furthermore, they warn against a reductionist approach to investigating cognitive tasks whereby the task is stripped to an isolated cognitive principle. In applying this theoretical argument to educational practice, one could ask whether teachers should consider teaching towards related rather than single concepts. Learning experiences need to be integrated and explored through varying strategies. This means that knowledge should not be presented primarily as specifics, as principles to be learnt, strategies or rules for problem-solving or a concentration on

content (curriculum) but as general problem domains or spheres relating to their current play goals for children to actively investigate. This type of approach would orient children towards understanding sets of related problems. We need to develop integrated knowledge bases which can develop over time and which should not be confined to a specific twenty minute lesson or activity time. (The implications here for the early years of primary school are most challenging.) Thematic teaching has created feelings of concern among educators as it has largely been abused; nevertheless, it appears that something along these lines could be appropriate. Such an approach could foster conceptual integration rather than isolated conceptual development. It would also cater more adequately for individual differences, as it would allow for multiple entry and exit points, and would provide room for failure and self-correction whereby children could generate alternative strategies and questions. Thus, the traditional use of curriculum to teach specific concepts can legitimately be questioned.

The implications for educational practice are challenging.

Obviously, further research is needed in order to answer these questions and, hopefully, these answers will emanate from future Australian early childhood research which can take its place in international arenas.

References

Asmita, M. (1988) Peer interaction and problem solving: when are two heads better than one? *Child Development, 59*, 87–96.

Asmita, M. & Perlmutter, M. (1989) Social influences on children's cognition: State of the art and future directions. In H. Reese (ed.), *Advances in child development and behaviour, 22*, 90–144. San Diego: Academic Press.

Bickhard, M. (1992) Scaffolding and self scaffolding: Central aspects of development. In L. Winegar & J. Valsiner (eds), *Children's development within social context: Research and methodology, 2*, 33–52. Hillsdale, NJ: Erlbaum.

Campbell, R. (1992) A shift in the development of natural kind categories. *Human Development, 35*, 156–164.

Case, R. (1985) Intellectual development: Birth to adulthood. New York: Academic Press.

Case, R. & Edelstein, W. (eds) (1993) The new structuralism in cognitive development: Theory and research on individual pathways. New York: Karger.

Case, R. & Edelstein, W. (1993a) Introduction: Structural approaches to individual differences. In R. Case & W. Edelstein (eds), *The new structuralism in cognitive development: Theory and research on individual pathways*, 1–10. New York: Karger.

Cole, M. (1992) Context, modularity and the cultural constitution of development. In L. Winegar & J. Valsiner (eds), *Children's development within social context: Research and methodology, 2*, 5–31. Hillsdale, NJ: Erlbaum.

Demetriou, A. (ed.) (1988) Neo-Piagetian theories of cognitive development: Towards an integration. Amsterdam: North Holland.

Demetriou, A., Efklides, E. & Platsidou, M. (1993) The architecture and dynamics of developing mind. *Monographs of Social Research in Child Development, 58*, 1–59.

Dolse, W. & Mugny, G. (1984) The social development of the intellect. Oxford, UK: Pergamon.

English, L. (1991) Young children as independent learners. In Evans, G. (ed.) *Learning and teaching Cognitive skills*. Hawthorn, Vic.: Australian Council for Educational Research.

Fischer, K., Knight, C. & Van Parys, M. (1993) Analysing diversity in developmental pathways: Methods and concepts. In R. Case & W. Edelstein (eds), *The new structuralism in cognitive development: Theory and research on individual pathways*. 33–56. New York: Karger.

Fischer, K. & Silvern, L. (1985) Stages and individual differences in cognitive development. *Annual Review of Psychology, 36*: 613–648.

Flavell, J. (1971) Stage related properties of cognitive development. *Cognitive Psychology, 2*: 421–453.

Flavell, J., Flavell, E., Green, F. & Moses, L. (1990) Young children's understanding of fact beliefs versus value beliefs. *Child Development, 61*: 915–928.

Flavell, J., Donna, L., Mamme, L., Francis, L. & Flavell, E. (1992) The young child's understanding of different types of beliefs. *Child Development, 63*: 960–977.

Gauvain, M. & Rogoff, B. (1989) Collaborative problem-solving and children's planning skills. *Developmental Psychology, 25*: 139–151.

Gelman, R. & Greeno, J. (1989) On the nature of competence: Principles for knowing in a domain. In L. Resnick (ed.), *Knowing, learning and instruction: Essay in honour of Robert Glaser*. 125–185. Hillsdale, N.J.: Erlbaum.

Hart, L. (1982) The concept of contradiction in the study of cognitive development. PhD. thesis. Australian National University, Canberra.

Kerlinger, F. (1986) Foundations of behavioural research (3rd ed.) New York: Holt, Rinehart & Winston.

Krasnor, L. & Pepler, D. (1980) Study of children's play: Some suggested future directions. In K. Rubin (ed.), *New Directions for child development: Children's play*. 12–36. San Francisco: Jossey Boss.

Lambert, B. (1991) Problem-solving approaches in three year old boys and girls. Paper presented at 25th Anniversary Conference of the Early Childhood Education Council, Calgary, Alberta, Canada.

Langford, P. (1989) Educational Psychology: An Australian Perspective. Melbourne: Longman Cheshire.

Lautry, J. (1993) Structure and variability: A plea for a pluralistic approach to cognitive development. In R. Case & W. Edelstein (eds) *The new structuralism in cognitive development: Theory and research on individual pathways*. 101–114. New York: Karger.

Lewis, C. & Osbourne, S. (1990) Three year olds' problems with false belief: Conceptual deficit or linguistic artefact. *Child Development, 61*: 1514–1519.

Miller, P. (1989) Theories of developmental psychology (2nd ed.) New York: Freeman & Co.

Moss, E. (1992) The socio-affective context in joint cognitive activity. In L. Winegar & J. Valsiner (eds), *Children's development within social context: Research and methodology, 2*: 117–154. Hillsdale, N.J.: Erlbaum.

Murray, F. (1991) Questions a satisfying developmental theory would answer: The scope of a complete explanation of developmental phenomena. In H. Reese (ed.), *Advances in child development and behaviour, 23*: 39–48. San Diego, CA: Academic Press.

Pepper, S. (1942) World hypotheses: A study in evidence. Berkeley: University of California Press.

Perkins, D., Jay, E. & Tishman, S. (1993) Beyond abilities: A dispositional theory of thinking. *Merrill Palmer Quarterly, 39*: 1–21.

Perner, J. (1992) Grasping the concept of representation: Its impact on four year olds' theory of mind and beyond. *Human Development, 35*: 146–155.

Phelps, D. & Damon, W. (1989) Problem-solving with equals: Peer collaboration as a context for learning maths and science concepts. *Journal of Educational Psychology, 81*, (4): 636–649.

Piaget, J. (1974) The grasp of consciousness. Cambridge, MA: Harvard University Press.

Piaget, J. (1980) Adaption and intelligence. Chicago: Chicago University Press.

Pintrich, P., Marx, R. & Boyle, R. (1993) Beyond cold conceptual change: Role of motivational beliefs and classroom contextual factors in the process of conceptual change. *Review of Educational Research, 63*: 167–199.

Reese, H. (1991) Contextualism and developmental psychology. In H. Reese (ed.), *Advances in child development and behaviour, 23*: 187–230. San Diego, CA: Academic Press.

Rogoff, B. (1990) Apprenticeship in thinking: Cognitive development in social context. Oxford, U.K.: Oxford University Press.

Rowe, H. (1998) Towards ecologically valid methods of intelligence assessment. In G. Davidson (ed.), *Ethnicity and cognitive assessment: Australian perspectives*. 27–36. Darwin, N.T.: Darwin Institute of Technology.

Ruff, H. & Lawson, K. (1991) Development of sustained focused attention in young children during free play. *Developmental Psychology, 26*. 85–93.

Russell, J. (1990) The preschooler's understanding of the causes and consequences of emotion. *Child Development, 61*. 1872–1881.

Santrock, J. & Yussen, S. (1992) *Child development: An introduction* (5th ed.) Dubuque I.A.: W.C. Brown.

Siegler, R. (1986) Children's thinking. What develops? Englewood Cliffs, N.J.: Prentice Hall.

Smith, A. & Inder, P. (1993) Social interaction in same and cross-gender preschool groups: A participant/observer study. *Educational Psychology, 1*. 29–42.

Smith, T., Takhvar, M., Gore, N. & Vollstedt, R. (1985) Play in young children: Problems of definition, categorisation and measurement. *Early Childhood Development and Care, 19*. 25–41.

Smith, P. & Vollstedt, R. (1985) On defining play: An empirical study of the relationship between play and various play criteria. *Child Development, 56*. (4) 1042–1050.

Sternberg, R. & Okagaki, L. (1989) Continuity and discontinuity in intellectual development are not a matter of 'either-or'. *Human Development, 32*. 158–166.

Tudge, J. (1989) When collaboration leads to regression: Some negative consequences of socio-cognitive conflict. *European Journal of Social Psychology, 19*. 123–138.

Valsiner, J. & Winegar, L. (1992) Introduction: A cultural historical context for social 'context'. In L. Winegar & J. Valsiner (eds.) *Children's development within social context: Metatheory and theory, 1*. 1–18. Hillsdale, N.J.: Erlbaum.

Vygotsky, L. (1978) Mind and society. Cambridge, MA: Harvard University Press.

Wellman, H. & Gelman, S. (1992) Cognitive development: Foundational theories of core domains. *Annual Review of Psychology, 43*. 337–375.

Winegar, L. & Valsiner, J. (1992) Recontextualising context: Analysis of metadata and some further elaborations. In L. Winegar & J. Valsiner (eds) *Children's development within social context: Metatheory and theory, 1*. 249–266. Hillsdale, N.J.: Erlbaum.

Wood, D. (1988) How children think and learn. Oxford, U.K.: Basil Blackwell.

CHAPTER SEVEN

The Early Childhood Curriculum Debate

Toni Cross

Introduction

While the status of Developmentally Appropriate Practice (DAP) is currently high in Australia (it forms the underpinning rationale of the National Accreditation Scheme), in the United States it is has been much criticised over the past five years, and is currently under significant attack. This disenchantment with DAP and the defences which have been mounted to counteract it form what is known in the literature as the 'Early Childhood Curriculum Debate'.

What is this debate is about? Like most educational debates, this one turns crucially on the question of precise definitions, and the philosophical stances and political leanings of those who use certain words and phrases to describe their preferences. (See Elkind, 1989; Kessler, 1991a,b; & Goffin, 1994, for excellent but different expositions of the political explanation of this debate.)

This debate is occurring now because of the association of Developmental Practice with centre accreditation in the United States and the movement of the discourse of 'Early Childhood' into national curriculum debates in the public elementary school (from Kindergarten to Grade 3). Since we are in the midst of two similar movements, there are signs in the discussions that have already taken place that a similar debate is surfacing here too. Precisely because DAP forms the rationale for our new accreditation system, we need to be prepared with our responses. The widespread nature of the criticisms of DAP in the US has to do with a lack of clarity about the concept of developmental education, and the use of imprecise, unanalysed definitions of key terms by the proponents of the Developmental Approach on the one hand, and on the other, an inadequate and out-of-date understanding of the hallmarks of developmental theory, current discussion, and research by Curriculum Theorists critiquing the approach. It is important that we do not simply repeat these pitfalls in our discussions.

In this paper, the conclusion will be drawn that some of the points the critics make are legitimate criticisms of the relevance of Developmental Education in the public schools, but that they have much less force in what we call the 'birth to preschool sectors' (0–5 years) of Early Childhood. We must soon face explicitly the inherent difference between these sectors and develop differentiated, less general, and simplistic approaches to each of them.

Being mindful of the need to be clear, definitions and positions in the debate will form the introduction and will be placed 'on the table' for scrutiny.

Developmentally Appropriate Practice (DAP)

The NAEYC developed a Position Paper on Developmentally Appropriate Practice which was published over Bredekamp's name in the United States in 1987. There have been subsequent publications, but this one will be used because it is the most often quoted by critics. Basically NAEYC defines Developmental Appropriateness as having two criterial dimensions — age appropriateness and individual appropriateness. These will be summarised only briefly because they are described clearly by Fleer in Chapter Two.

Age appropriateness:

Age appropriateness is based on 'universal predictable sequences of growth and change that occur in children in the first nine years of life' in the separate 'domains of development ... the physical, emotional, social and cognitive' (p.2). The knowledge base derived from developmental theory and research forms the framework in which early childhood educators structure the learning environment and plan relevant experiences. Age appropriate practice emphasises aspects of development which are deemed to be applicable to all children in a uniform way and assumes a simple maturational model of development.

Individual appropriateness:

Individual appropriateness stresses aspects of development which are unique to each child, such as the rate of development (Elkind, 1989), individual personality characteristics (such as temperament), and factors which may be influenced by the different cultural and social circumstances in which the child is living (such as the persistent family interactional experiences). The individually appropriate curriculum is responsive to these individual characteristics insofar as learning experiences need to be planned to match each child's growing abilities, 'while also challenging the child's interests and understanding' (p.2). In practice, this perspective, of necessity, cuts across the global maturational model of development.

The position paper outlines a number of developmentally appropriate practices and opposes these to inappropriate practices at a quite detailed level which, although not always derivable from developmental theory and research, have generally been seen as the major contribution of the paper to the guidance of teachers working with young children. More than anything else, this presentation of specific practices as always being 'developmentally appropriate' and others as never being so (i.e. as being 'developmentally inappropriate') has been seen as the crux of the position paper, rather than the principled guidelines which are drawn from particular theoretical approaches. This presentation is what the criticism and the evaluative research has usually judged as simplistic and doctrinaire, often quite convincingly.

The revised Position Paper (1991): '*Guidelines for Appropriate Curriculum Content and Assessment in Programs Serving Children Ages three through eight*', provides a stronger theoretical basis for the notion of 'appropriate' and 'inappropriate'. Although it sets out to rely more explicitly on selected aspects of Piaget's and Vygotsky's cognitive developmental theories, it by no means escapes all of the criticisms aimed at the earlier paper. Much attention is given in both papers to the term 'appropriateness' especially as it applies to practices. However, the term 'development' is left in limbo (and is the more complex and vague term, as Lambert in this volume notes) and will be dealt with later. The term 'practice', on the surface seems straightforward enough but in fact also needs clarification.

Much literature is currently being generated by the DAP debate — most of it well-argued and intelligently presented on both sides; in many cases each proponent has written several papers or chapters since the late '80s and is continuing to do so.

Critiques of DAP

This chapter focuses on several very recent publications. Most, though not all, of the critical discussions have recently appeared in a 1992

collection of papers edited by Kessler and Swadener and entitled *Reconceptualising the Early Childhood Curriculum: Beginning the Dialogue*, which contains papers approaching Early Childhood curriculum issues from the point of view of interpretive science, critical theory and/or post-modernism or feminist post-structuralism (cf. MacNaughton, ch. 4). These are all movements advocating alternative approaches to social theory which have had some following amongst social scientists, particularly in the United States for a couple of decades, all are critical of what they variously call traditional, positivist, empirical-analytic science, which is how they categorise traditional approaches to developmental psychology.

Other writings reviewed in this paper also owe their style of approach to these positions, though they are less rhetorical and doctrinaire (e.g. Goffin, 1994). These approaches are explicitly, and unapologetically, steeped in progressive, radical political theory and rhetoric and view the curriculum rather than the individual child as the focus of education. They express a predominantly American concern, are rooted in primary and secondary public education, and represent a strong opposition to traditional notions of curriculum theory as it applies to formal schooling (e.g. Swadener & Kessler, 1991). Some have only recently turned their attention from this perspective to early childhood education.

It should be noted, however, that most of these critiques of DAP are preoccupied with early childhood settings in the school sector (K–3) and only occasionally mention preschools (4–5 years). The Australian concern to steadfastly include the day care, family day care, and other systems which include children in the 0–3 years age bracket, is noticeably absent from these writings. Such criticisms, therefore, have a restricted perspective in that they are concerned with education as a formal, school-based, social institution and curriculum, and they are strongly committed to certain qualitative research methodologies, such as literary theory, socio-linguistics, narrative inquiry, ethnography in various forms, and politico-historical approaches.

The criticisms

DAP is method not content

One of the early critics of DAP (as expounded by NAEYC) was Spodek (1988; 1991) shortly after its publication. His basic criticism is a logical point that is not easy to answer. He claims that the NAEYC document suggests that early childhood programs should be based on developmental theory alone. His main rebuttal is that developmental theory can only tell us whether the educational method we choose is appropriate, i.e. how to teach something; it cannot be used to determine content or what we decide to teach. In other words, 'while knowledge of Child Development research and theory can be used to determine the appropriateness of a particular educational method for a particular group of children, such knowledge cannot be used to determine what should be taught to those children' (Abstract). Rather, we should be giving closer attention to how we choose the content of early childhood programs.

This criticism is echoed later by Kessler (1991a; 1991b) who, in a re-examination of the developmental orientation as a 'prescription for practice', claims there is a lack of attention to what should be taught in a 'developmentally appropriate classroom' (p. 137). Similarly, Goffin (1994) argues that using developmental theory as an educational outcome directs attention to what children can learn or do rather than what they

should be learning or doing. In short, all are arguing that DAP provides information for determining what methods should be used to present material in a classroom but not what should be selected for presentation.

DAP represents a monocultural orientation

Jipson (1991) adds another strong criticism. In the light of the developmentally appropriate (especially individually appropriate) criteria of the NAEYC position paper, she conducted a qualitative research investigation involving the journals and personal narratives of 30 early childhood educators from a range of services. She concluded that DAP 'frequently failed to acknowledge the roles of culture, care-taking, interconnectedness, and multiple ways of knowing in the teaching-learning experiences of young children' and threatened to 'standardise the socialisation of children to monocultural norms (p. 135) by limiting the range of teaching possibilities at the teacher's disposal.

This criticism is picked up, but in a much stronger form, in an interpretive paper by Swadener & Kessler (1991), and in a more scholarly paper by Kessler (1991a) alone. Both are in a special issue of Early Education and Development (1991) devoted to critical analysis of issues in developmental education from the perspective of curriculum studies. Swadener & Kessler argue that the child-centred approach of DAP may not serve all children equally well, and they seek 'alternative paradigms to the long-dominant developmental psychology role in early childhood theory and practice' (p. 92). Bloch (1992) and later Goffin (1994), contend that Early Childhood curricula, as a consequence of reflecting research conducted on white middle-class subjects and contexts, tend to portray predominantly white middle-class perspectives on society and the family, and social and developmental norms. Each of these criticisms finds the individual appropriateness criterion wanting (I suspect, because the position paper fails to come to grips with the inherent competition between implementation of the age appropriate criterion and the individual appropriate criterion).

DAP undervalues female development

In similar vein, Kessler (1991b), in another impressively argued paper, claims that the answers to such questions as 'where should a child be in developmental terms at a particular age?' or 'What is the desirable end or goal of development at various ages', are answered by most developmental theories 'on the basis of the typical development of white males' (p. 142). The female experience is not treated separately and is thus undervalued by a male dominated approach to the developmental theories underpinning developmental practice. It should be noted that this claim highlights a tendency in this literature to confound traditional theories of development with developmentally appropriate practice and to treat them as the same thing. However, it will be argued later that, in reality, there is no necessary, logical connection between them.

Development is only a metaphor

Kessler also argues (quite well) that proponents of the Developmentally Appropriate Approach have erred seriously in not recognising that 'development' is merely a metaphor for education; it cannot be taken literally. This point has some force (and will be dealt with later). However, it underscores the very narrow definition of development which is being used by these critics — a narrowness which is counteracted by

Page 91

Lambert's review (this volume) of more recent approaches to developmental theory and research.

Goffin's challenges to DAP

Goffin (1994) in a comprehensive coverage of the issues makes much of the previous criticisms, but she also makes some other very telling critical points about the underpinnings and practice of DAP. She argues that there are issues surrounding developmental theory, when used as the basis for curriculum in early childhood education, which challenge its educational value as an tool 'for promoting child growth, its role in determining practice, and the extent to which it is value free' (p.189).

Goffin claims that in the study of Child Development there have been four significant advances since the 'heyday' of curriculum model development during the late '60s and '70s which, with hindsight, undermine the credibility of developmental theory: a greater attention to the importance of heredity in human development; a clearer understanding of the contribution of environmental factors; appreciation of the social character of individual development; and reappraisal of developmental psychology as scientifically objective. These shifts, she argues, have brought about changes in the assumptions and understandings which underpin what she calls 'Child Development'. As a result, early childhood curriculum models, which have been so reliant on developmental theory for their design, themselves now need to be reassessed (p.191).

Goffin also claims that, having its roots in Piaget's explanations, developmental theory neglects the crucial role of emotional and social factors in accounting for developmental phenomena. Further, as it is no longer seen as scientifically objective, it has lost its authoritative status. Reliance on developmental theory to guide educational goals, moreover, 'obscures the political dimensions of what is taught by implying that curriculum choices should be determined by developmental appropriateness rather than by political and moral priorities' (p.199). Concentrating on the development of the individual has the effect of putting the onus for change on the individual, and distracts from structural analyses of larger social problems, inequities and inappropriate value systems operating in the educational context (Bloch, 1991).

Along with Kessler, Goffin makes a strong plea for the field to develop a democratically based curriculum in Early Childhood, rather than a developmentally appropriate curriculum.

Support for DAP

Bredekamp's defence (1991)

In an invited article in the same journal as Kessler used to criticise DAP (the second volume of the 1991 *Early Childhood Research Quarterly*), Bredekamp makes a direct response to Kessler. In it she makes the following points:

- NAEYC welcomes debate on the reconceptualisation of developmentally appropriate practice on the ground that it is the primary function of professional organisations (and journals) to provide a forum for the debate of critical issues confronting the profession. She considers that, in a positive way, Kessler's critique has strengthened advocacy for more appropriate curriculum by highlighting the issue of curriculum for the young.
- Her response to Kessler's and Spodek's point that DAP does not determine what children should know is that knowledge of child development and learning has been ignored

too often in the past with consequent inappropriate interaction with, and even abuses of, children in education settings (of which she lists a few examples). However, this is to evade rather than rebut the substance of their critique on this point.

Bredekamp concurs with Kessler that the curriculum debate is essentially a political one and that DAP is NAEYC's political position regarding what is valuable in the curriculum. She accepts that DAP should not be the sole criterion to inform curriculum which should also include philosophy and theory beyond child development. Cultural knowledge and values of the community and family should form part of the rationale for selection of curriculum, but not in isolation from knowledge of child development.

In defending DAP against the accusation that NAEYC has relied too heavily on developmental theory in its curriculum and to explain why they will continue to 'emphasise child development' (p.206), Bredekamp puts NAEYC's three arguments thus:

> '1. Child development is an important part of our knowledge base, albeit imperfect and changing; it is what we as early childhood educators bring to the curriculum table....
> 2. Child development is a large part (though not all) of our definition of a quality program for children, and NAEYC has assumed the responsibility for setting standards for our own practice.
> 3. Knowledge of child development has too often been overlooked and children have suffered as a consequence....' (p.207).

Finally, she enlists Shannon (1990, cited in Brekedamp, 1991) who, in writing on progressive reading instruction in the United States, listed several key areas of agreement between the 'social reconstructionists' who advocate emphasis on curricula for democracy, and 'developmentalists', who advocate a child-responsive curriculum. Shannon called for both camps to join forces to challenge the prevailing scientific view of curriculum (Elkind's 'psychometric' approach, see below). Bredekamp concludes by urging that we build on such common ground to achieve curriculum that 'draws on both knowledge of child development and the basic tenets of schooling for democratic living (as being)... in the best interests of our children' (p.208).

This is all quite laudable, but the problem with Bredekamp's defence is that it does not go to the most telling of the criticisms outlined above.

Elkind's position

A more cogent argument for DAP (or 'developmental education' as he often more aptly terms it) has been put in recent articles by David Elkind (e.g. Elkind, 1989; 1993), who marshalls strong theoretical, political, and pragmatic arguments in its defence. He recruits both Piaget and Vygotsky to support the position that it is imperative to understand the relationship between learning and development in approaching educational practices. He, too, recognises the political nature of the debate, arguing that true educational reform includes the philosophical and political, as well as the conceptual, level. Like Bredekamp, he differs from the social reconstructivists in seeing DAP as the means of reforming traditional approaches to curriculum, rather than principles for democratic living.

According to Elkind, the various components of the educational establishment share an implicit educational philosophy which he calls 'psychometric' because it approaches education from a quantitative point of view and is therefore assessment oriented. This underlying philosophy pulls the various components of the educational

system together into a formidable barrier to genuine educational reform. In his papers, it is DAP not social reconstructivism which constitutes the most serious challenge to the entrenched psychometric philosophy.

Elkind's definition of DAP

Like other developmentally oriented educationalists (e.g. Kohlberg & Mayer, 1972), Elkind (1989, 1993) bases his understanding of development on Piaget's conceptualisations. He makes the incontrovertible point that any philosophy of education must take account of four central elements: the learner, the learning process, the information to be acquired, and the formal goals or aims of education (p.56). Thus, he differs from Spodek and other curriculum-oriented theorists in emphasising that all components are the legitimate concern of curriculum design, not just the information to be acquired which is the focus of both the traditional curriculum theorists and the social reconstructivists.

The learner

In developmental education, the learner is seen as having 'developing' (i.e. constantly changing) mental abilities (p.8). To be developmentally appropriate, curriculum materials should be introduced only at the point at which the child has attained the level of ability necessary to master them. In this way developmental theory is crucial to curriculum design — curricula must be analysed with the level of ability required to comprehend them in mind.

The learning process

Elkind (1993) subverts Spodek's argument that developmental theory may inform only the method of practice but not the content or curriculum by extending Piaget's proposition that learning is always a creative activity — an individually constructed process. Therefore, whenever we learn anything, we interact uniquely with the world in such a way as to create something new that is a product of both our own mental activity and the nature of the material with which we have been interacting (p.53). Elkind via Piaget is thus a through-going constructivist. A simple copy of content is not possible: our conception of it is always coloured with our individual way of making sense of the world. Therefore, learning is never independent of the detail of actual content in the learning process. He points out that the material to be learned interacts with the learning process in some special way and that this was long ago demonstrated by Bruner, Goodnow & Austin (1967) when they repeatedly found that the specific nature of any problem determines the specific problem-solving strategies their subjects used (p.58).

Knowledge

Few people would dispute Elkind's (1993) idea that 'knowledge is always a construction' or that 'the outcome is inevitably a joint product representing contributions of the subject and the object' (p.59) of knowledge, and the nature of its transmission. However, what Piaget added was the logical consequence that the categories of knowing (mental operations) are not constant but rather change, often radically, with age and experience — and, taken seriously, this makes a great difference to how we view the content of teaching. To use Elkind's words:

> *As their mental operations develop, children are required to reconstruct the realities they elaborated at the previous developmental level. In effect, each child creates reality, and recreates it, out of his/her experiences with the environment. The reality of the young child,*

his or her knowledge, and ways of knowing are thus different from the reality of the older child.'

Therefore, any subject matter, any aspect of curriculum, has to be chosen to fit the constructions the child is developing at the time.

The aims of education

Elkind's aims of developmental education (Elkind, 1989) rest logically on the following series of propositions. Since the learner is a 'growing individual' with developing and changing abilities and unique learning strategies, since learning is regarded as a creative activity, and since 'knowledge is an individual's construction, then the aim must be 'to facilitate this growth, this creative activity, and this construction of knowledge' (p.8). To quote him further:

> *'The aim of developmental education is to produce creative, critical thinkers. This is not achieved by teaching children and adolescents thinking skills, but rather by creating developmentally appropriate learning environments that will encourage and challenge the child's emerging mental abilities. Creative and critical thinking are not skills to be taught and learned but rather reflect basic orientations towards self and the world that can only be acquired when children are "actively engaged in constructing and reconstructing their physical, social, and moral worlds". (Elkind, 1989, p.8)*

Although, he does not address it directly, I consider this would be Elkind's pre-emptive answer to the social reconstructivists' insistence on education for democratic living — that is, each child must first and foremost have the opportunity to participate in maximising his/her creative and ethical potential before being directly taught any subject.

Nevertheless, Elkind does not deny the value and importance of curriculum knowledge. He insists it is a question of 'what comes first' (p.9). Once children are curious, active learners, they will more easily acquire the knowledge that educational policies demand (democratically focused or whatever), and will often go well beyond this. But the ability to be curious, active learners needs to come prior to the acquisition of particular information (Elkind, 1989, p9).

Because the curriculum must be analysed into tasks that are appropriately pitched to the child's current mental abilities and specific learning strategies, it follows that it must be constructed empirically and not 'a priori' (p.62). To do this well we need to systematically observe each child, record and interpret these observations in terms of sound theory and research, and draw inferences about the child current abilities. There is, therefore, no way to determine how children will learn something without studying how they actually learn it. 'A truly developmental educational system would provide many opportunities for teachers to construct and test their own materials' (Elkind, 1993, p.62). Therefore, Elkind argues, a curriculum should never be final; it should always be 'open, flexible, and innovative'. (Elkind, of course, often goes on from this point to strongly advocate the inclusion of much child development in all teacher training courses.)

This is a much stronger defence of DAP and in many ways compensates for some of the theoretical shortcomings of the NAEYC version. Elkind answers well the claim that DAP is about method and does not determine content. For any content to be taught (i.e. presented) effectively, and to be adequately learnt by the child, the material must be selected and then structured according to both developmentally and individually appropriate principles and practices. Planning curriculum for

individual children will require decisions about what content they can cognitively, socially, and emotionally cope with and realistic appraisals of their next level of competency (or the developmental 'outcomes' to use the 'in' term). To work, such curriculum decisions must logically be based on both general developmental knowledge and individual developmental observation.

However, in relying exclusively on the 'Grand Theorists' for his theoretical base, Elkind also risks falling foul of the social reconstructivists' critiques of their predispositions and biases (see Bradley, 1989; Goffin, 1994; & Lambert, this volume, for discussions of these shortcomings). Elkind's interpretations do not escape some of the most telling of these; for example, the accusation of pseudo-objectivity, the points that their theoretical roots come from mono-cultural perspectives and undervalue the female experience, and their lack of priority on social-emotional factors. Nor does he overcome the metalinguistic critique that, when applied to teaching practice, development is only a metaphorical device. Notwithstanding these criticisms (which are more about what these theorists did not include rather than what they did), it must be said that Elkind focuses solely on their general conceptual approaches to buttress his notion of what the process of development is like. At this level of generality, most of us would agree with Lambert (Chapter Six) that their general conceptions still make sense. These more specific criticisms of omission are not, therefore, entirely relevant, since the detail of their theories is rarely used in DAP position statements.

As the reader will have gleaned, however, I am not persuaded that either Elkind or Bredekamp have satisfactorily handled the social reconstructivists' damaging strong points which are

Is it developmentally appropriate 'practice, 'program', 'curriculum', 'education' or merely 'approach'?

aimed at the rationale for Child Development as the main determinant of Early Childhood programs; in fact, neither of them really addresses them.

The confusing use of terms in the debate

Having outlined some of the criticisms and defences of developmentally-based education, let us now return to my earlier claim that a major problem with this debate is the lack of agreement about the crucial terms on which the debate turns. I am especially struck by the confusion of concepts and the interchangeable use of terms to encapsulate the theoretical underpinnings of the DAP (e.g. development, developmental theory, child development, developmental education, even early childhood). I am also concerned about the focus of the debate. Is it developmentally appropriate practice, 'programs', 'curriculum', 'education' or merely 'approach'? To me these all mean different things. What does Early Childhood mean by these terms? Or, for that matter, what does Early Childhood mean by the term, 'Early Childhood'? You will recall that the social reconstructivists' focus seem to limit their definition of 'Early Childhood' to the early years of the school sector. We will see that even here there is ambiguity.

In an attempt to contribute to the clarification of the points of disagreement in this debate, the following is an analysis of several of these issues.

'Early Childhood'

Since DAP is intended to be applied to Early Childhood Education, it is important to define the term 'Early Childhood', and this is not as straightforward as might appear.

Among the international profession of Early Childhood, there are at least four ways in which the term 'Early Childhood' is used. Early Childhood professionals tend to use the term elliptically and to switch without warning between each of these meanings. Linguistically, in each case the term is usually used as shorthand for an adjectival phrase qualifying a noun or noun phrase, and this is at the heart of the ambiguity. The noun in each case is different, and usually deleted, which lends a quite different sense to the meaning of Early Childhood when it is used in different linguistic contexts. To the uninitiated, this ambiguity in the use of the term causes confusion. I contend that we Early Childhood specialists are ourselves guilty of confusing the issues by not being more explicit in indicating what sense of the term we mean. In fact, we ourselves tend to conflate more than one of the meanings in our thinking and speaking, and thus contribute to the confusion.

First sense: The Early Childhood period

This is internationally defined as birth to eight years of age, or sometimes, cognitively, from birth to full onset of Piaget's stage of concrete operational thinking. An example of usage in this sense would be, 'I believe he was abused in Early Childhood'. This would simply mean the Early Childhood period of development. However, in most circumstances we, Early Childhood speakers, often mean quite a lot more by the term than this.

Second sense: The Early Childhood profession

This refers to those who are specifically trained to work with children in settings and services which care for and educate children in this developmental period. For example one might say,

'I'm in Early Childhood', which means that the speaker is an Early Childhood specialist. Sometimes we say we are in the Early Childhood 'field', but even th... is ambiguous with the third sense of Early Childhood.

The third sense: The Early Childhood services

This refers to the several different settings in which infants and young children are cared for and educated, and in which Early Childhood professional (teachers) work — i.e., the first years of primary school, the preschool, the long day care centre, the family day scheme, etc. (e.g. 'I work in Early Childhood'). Thus the term 'field' used of Early Childhood can mean the profession, the professionals, and the services in which they work.

The fourth sense: The Early Childhood approach (or philosophy)

This refers to the child-centred, child-responsive, developmentally-oriented approach to interacting with, programming curriculum for, and managing children as individuals in group settings. This approach, of course, can be used well beyond the Early Childhood period of development, and so the meaning is distinct from it, the profession and the setting — for example, 'She's very Early Childhood', said of a primary teacher. More specifically this probably means that she has been discovered using 'Developmentally Appropriate Practice' or 'Child centred/responsive curriculum'. Hence, this is the definition which should be the focus of the debate. It is here that both sides are in need of an explicit, precise, and agreed upon definition of 'development'.

'Development'

A major problem with the social reconstructivists critiques is that they offer no clear definitions of 'the Developmental Approach' that is their target. They either explicitly or by implication address mostly Kohlberg and Mayer's conceptions (Piaget) and Elkind's (Piaget) of this approach to education. It is true that Piaget does tend to neglect the influence of social interaction, the emotional aspects of development, and the power of culture, so this criticism is appropriate. But in using Piaget and other 'Grand Theorists' as their target, as Lambert (this volume) points out, they are alarmingly out of date.

In the phrase 'Developmentally Appropriate Practice (or Education or Curriculum)', the term 'Development' is obviously short for Child Development (see Bredekamp, 1987; 1991). What tends to be overlooked by the critics of over-reliance on 'developmental' theory is that, although the definition and conceptualisation of Child Development has its origins in Developmental Psychology (from whence much of the theory and research comes), it is by no means the same thing. Failure to make these definitional distinctions has become a major source of confusion in the debate.

Developmental Psychology

According to Seitz (1988), Developmental Psychology is a major sub-discipline of Psychology with its own histories and systems, its own methodologies, its own tradition of measurement and its own perspectives. Despite originating from Darwin's theory of evolution, the predominant conceptualisation of development has essentially stemmed from the approach of Jean Piaget. However, as Lambert (Chapter Six) stresses, these days it is no longer confined to this approach, or even to related approaches, which makes for a

greater problem of definition that was the case a decade or so ago. According to Achenbach (1988), most sound courses in Developmental Psychology used to include coverage of the theorists from the Era of Grand Theories (e.g. Freud, Erikson, Jung, Maslow, Piaget). Nowadays they should be covering also the extensive work of Bruner, Vygotsky, the Information Processing approaches, the Social Reconstructivists and approaches to the Child's Theory of Mind (see Dockett's and Lambert's chapters for more detailed discussions of recent approaches to developmental theory). Thus, the sweeping claims of the social reconstructivists, focused narrowly as they are on the 'Grand Theorists', miss the mark when applied to contemporary thinking in Child Development and Developmental Psychology.

Child Development

However, the terms 'Developmental Psychology' and 'Child Development' are not precisely interchangeable, although this is often the way the critics examined above have treated them. In fact, 'Child Development' is a term used mainly in education and teacher education (especially, but not exclusively, early childhood teacher education) and also in various branches of medical education. Its meaning is related to the practice of teaching or medicine; hence it is less precise than the term 'Developmental Psychology'. Moreover, what is considered Child Development varies in different institutions, and usually only means the range of disciplines of the academics who teach in the course entitled 'Child Development'. In early childhood courses we customarily mean much more these days than just those conceptualisations which come from developmental psychology; we now seat these concepts in a currently widening social, community, cultural and even political context. We call on writings and research, not only in Psychology (which itself has undergone a broadening contextually-oriented revolution) but also in Sociology, Anthropology, and Social Policy; and we apply them in educational terms, in educational settings and contexts. In many tertiary institutions, the Child Development approach is an integration of these disciplines or sub-disciplines, which is usually offered within a professional studies rather than (liberal or general studies) context.

For this reason, Child Development is not a pure discipline in the way Seitz argues 'Developmental Psychology' is. It is an approach (an applied approach) to teaching and or educational programming (or more precisely to pedagogy or curriculum, depending on which side of the debate you are on), and is much more open to individual interpretation. It is certainly not scientifically objective; it is subjectively selective to suit the individual practitioner or practice. Hence it is, unfortunately, a somewhat vague term. Like the term, 'Early Childhood', it plays an implicit adjectival role in a sentence and therefore needs a noun following it to make it more specific. Because it is not a separate and unitary academic sub-discipline, it should not be treated or taught in isolation from the educational context in which it evolved. (And in the four early childhood programs I have taught in, it was not.)

Child Development as an educational approach

As Seitz (1988) notes, key components of the definition of 'development' are change and continuity, as well as the exploration of antecedents and causes of both change and continuity. This is where the definitions of Developmental Psychology/Sociology and Child Development (as an Educational sub-discipline)

separate. Those who practice Child Development and those who teach it as a an education subject, while learning from Developmental Psychology/ Sociology etc. have a different reason for doing so: they are concerned with forward aspects of children's growth, with predicting and influencing the outcomes of the developmental process, rather than studying it in its own right.

It has been argued that Child Development in its most useful applied form should be seen as an approach which integrates the separate disciplines of the Behavioural Sciences: Psychology, Sociology, Anthropology (and others). However, this is not the whole story. Child Development really has a quite different orientation. It is about the principles and the practices which best promote children's growth, learning, and development. Thus, in Early Childhood, it becomes more a guiding philosophy of best practice than simply the study of developmental processes for its own sake. (The distinction is the difference between learning about something and practicing that learning in the complex real world — the practice requiring different and extra elements of knowledge and understanding beyond the study of how development takes place).

What does this difference between Child Development and Developmental Psychology/ Sociology mean for Developmentally Appropriate Practice? As Bredekamp (1991) points out, since the origins of the term are unknown (it was only defined for the purposes of supporting the 1987 NAEYC Position Paper) it means that the target of the reconstructivists' criticism — theory derived from Developmental Psychology — is quite inappropriate. Developmental Psychology is not the area that needs reconceptualising because it is only a resource which we Early Childhood Educators use for the construction of the practice-related subject area of Child Development.

Besides, the criticisms of developmental psychology as used by Kolhberg & Mayer in the early '70s are themselves out of date. There has been a great deal of reconceptualising since then (e.g. see Bradley, 1989, and Hinde, 1992). Beverley Lambert's chapter discusses some of the more recent and quite different perspectives that have been advanced. It is my contention in this paper that for the purposes of advancing the Early Childhood Curriculum debate, it is Child Development (the philosophy behind DAP) which should be reconceptualised, rather than the notion of developmentally appropriate practice per se. Perhaps, it would be more accurate to say that it should not so much be reconceptualising but rather, more carefully conceptualised in the first place as an early childhood education resource.

Conceptualising the Developmental Approach in practice

Having said all this, how should we conceptualise the term 'Child Development' when used as a rationale for Developmentally Appropriate Practice? Basically we mean to capture by the term an overall conceptualisation of human growth, the shared theoretical elements, distilled from the most useful aspects of the various developmental theories that we teach — i.e., Piaget, Freud, Erikson, Vygotsky, Bruner, Baldwin and many others (see Bornstein & Lamb, 1988 for descriptions of the major contemporary approaches). I, therefore, do not agree with Lambert (or the social reconstructivists) that we should put these 'grand' conceptualisations aside.

To do this would be to throw the 'baby out with the bath water'. These major developmental theories are certainly very different in detail, but they are remarkably similar in their grand sweep: in their macro-level conception of the dynamic and interactive process of human growth. They all recognise that growth means change, and share one of the two major hallmarks of a developmental conceptualisation of child growth — i.e. they attempt to systematically offer an overall explanation for growth or developmental change and attempt to pinpoint causes and antecedents of developmental change and progress. Such approaches can be opposed to theories such as Gesell's which are essentially merely descriptive of change. The second element they share is that they seat their explanations in a coherent global theoretical system. They model and test theoretical explanations and developmental processes, as against merely generating developmental norms. These are both elements which they also share with the more recent perspectives outlined by Lambert (this volume) and can be supplemented by them.

In essence, current Early Childhood approaches should build on developmental theories at this macro-level as philosophical underpinnings, and should be supplemented with the more recent frameworks and perspectives (like the work described by Lambert, Dockett and MacNaughton). In combination with sound research, the Early Childhood Educator can use this knowledge base to develop her/his own coherent, soundly-based approach to guide and to inform day to day planning, programming and practice. As Zigler & Finn-Stevenson (1988) state, the results of theory and empirical research in child development have crucial implications for the design of 'educational and socialising regimes and for the development of human policy' (p 593).

Defining Development in DAP

What, then, are the common elements in both the grand theories and the more recent approaches? Although the extent to which these changes are qualitative or quantitative is usually a matter for debate and difference, most major developmental theories postulate the merging throughout development of one (prior) qualitatively different stage or phase into a later more mature stage. One way of knowing gives way under the impact of constructive social interaction with others to a new, different, and more encompassing way of apprehending the world. For this reason, most Early Childhood education espouses the idea that development is stage- or, at least, phase-based, emphasising the complementary roles of inheritance and experience, change and continuity, throughout development. The emphasis on change owes a great deal to Piaget's conceptualisation of development, that on inheritance to Darwin, past experience to Freud and continuity to psychometric or information processing approaches (e.g. Sternberg, 1988). Thus, stages are seen as either sequentially or cyclically determined, as based on the individual's genetic blueprint, and/or expressed in active interaction with the environment, particularly the immediate social environment — family members, carers, and teachers. While Piaget emphasised the importance of the child's actions on, and interactions with, the environment in propelling children through the reorganisations inherent in stages, Vygotsky has had more influence in recent times, mainly because he considered that learning and development are essentially social. This has been picked up and given a more crucial role recently in Social Constructivist approaches. Vygotsky argued that the majority of educational

and instructional settings distort this fact about human activity — a point which is consistent with the high priority placed on the quality of the interactions with adults that children experience in preschool settings.

For early childhood educators there are some important common elements in the progress through stages or phases, but there is also a strong emphasis on the differences in rates and quality caused by both the tone of the nervous system and differences in the strength of development in specific areas of the brain. These differences increase as children grow. Hence, far from making children uniform in their abilities to learn, a thorough-going developmental approach starts with the expectation that all children will learn in different ways and will be at different stages (or substages) of development, even if they are at the same age. Thus, child developmentalists consider that children learn in different ways, depending on what stage they are at. They eschew the view, more common in traditional educational circles, that children or students (or even adults) learn in the same way at all ages.

In summary, developmental theories are used to explain the basic human processes that determine how and what children learn and when they can be expected to learn what. Children differ fundamentally from one developmental period to another. From this perspective an older child's capabilities are seen to emerge in an orderly and predictable way from the abilities the child had earlier in development. The later abilities are dependent on, and potentially explained by, such prior abilities. Further, there is the assumption that each individual's development is coherent over time. For every child there is a traceable continuity from one stage to another — from younger to older, from infant to school child and from child to adult.

Beyond this, most early childhood developmentalists have an individualistic conception not only of development but also of learning. That is, because of the unique interfaces that each child experiences between his/her biological blueprint and his/her individual interactions with the physical and social environment, each child learns in different ways from each other child.

Going one step further, developmentalists have now embraced the crucial role of the context of development — especially the social context — which is nowadays construed primarily as the interactions between each child during development and others. This shift entails the conscious appreciation that the social context, interactions between children and others, especially adults, are themselves developmental — they change with the changing levels of maturity the child is reaching. Adults, in particular, manage, interact, and talk to children in very different ways depending on their stages of development. The role of interaction is now seen as crucial in explaining not only development but also the incremental spiral of the process of development in interaction. A great deal of research attests to the fact that individual interaction styles of parents, carers, and teachers — however different they are from each other — change dramatically as development takes each child to different levels of maturity, in thinking, language use, and social competence. A contemporary conceptualisation of development as it relates to practice entails an understanding of the complexity and interrelatedness of child development and social context, and, of course, culture and subculture.

Having reviewed the meaning of some key terms in the debate, I want to return to the criticisms of DAP raised by the social reconstructivists I outlined earlier.

Responses to criticisms of DAP

Is Development a Metaphor? (Kessler)

In the context of the role of Child development in Developmentally Appropriate Practice, I believe that the social reconstructivists are right. 'Development' is only a metaphor. It stands for a number of key, defining principles of child growth and related contextual change. It is used metaphorically by Piaget (who borrowed it from biology), it is used metaphorically by most developmental psychologists when theorising. To miss this point is to misconstrue the enterprise of psychological theorising totally. To go even further and to apply the metaphor directly to the issue of what it is that children need to learn in a program promoting development, is to make a category mistake. That would amount to the claim that we actually teach development in early childhood settings, which is nonsensical, of course. But is this what advocates of developmentally appropriate practice are saying? Or is this a rhetorical fiction created by the language its critics choose to use?

As Bredekamp herself admits, much of the curriculum, and the basis for its selection, especially in schools, has nothing whatsoever to do with developmental theory or research. Many choices of content at the top level, particularly in the classroom, are made on the basis of teachers preferences and personal value systems (or those that were transmitted as politically correct in the teacher education curriculum), and in schools, on philosophical and political predilections of education department curriculum designers.

What I am arguing is that the term 'development' becomes a metaphor when used instead (or interchangeably with) the terms 'early childhood education', 'practice' or 'curriculum' (as it is in DAP). It is not the actual developmental process of educating (not literally), and certainly cannot directly determine the content or curriculum of the formal educational process, notwithstanding Elkind's argument cited previously. Educational practice is certainly a contextual factor in development, but it is not the actual process itself. You can go too far in fusing contextual influences (such as education) and the individual, in the way some radical social reconstructivists are doing. In seeing the context as an influence (however important), you must still see the individual who is developing as separate from it. Or else, you can lose the developing individual entirely, which is conceptually too holistic.

To put it another way, development is an internal neurologically-based process whose structural organisation at any given time (or stage) we must infer. Education is an external process in which the actions, context, and events are tangible to the learner, the teacher and to any observer. To imply they are the same thing is illogical. Education is only one way in which development can be influenced. It is not the only way, so it is not the development process itself. Education is the input which, in DAP, relies on inference about what developmental processes are taking place. Conversely, development is an outcome of the educational experiences the child has in the school or other social context. When you use development as though it is content or curriculum, you confuse the issue (which has happened in early childhood education). Development is the process and the outcome (the mental structures along the way). Education is the input and the process of inference on the part of the teacher which guides developmentally appropriate practice.

Method not Content? (Spodek)

Let us now take Spodek's point (a different point) that DAP relies too heavily on the developmental theory of Jean Piaget which can inform method but not content. By definitionally distinguishing a particular theory of development (in this case Piaget's) from the previously discussed global conceptualisation of Child Development which underpins developmental practice, we can defend this point by reference to the specific theory to which he is referring. While it is probably true that a global theory of Child Development cannot alone tell us what to teach, Piaget's theory, because it is focused on a conception of knowledge, can in fact inform even top level curriculum decisions. I believe Spodek's point can be refuted, therefore, on the ground that he misunderstands the nature and focus of Piaget's theory. It is in fact an epistemological theory (a theory of knowledge, and of the acquisition of the abstract principles of knowledge). If one accepts Piaget's propositions about the changing structures and organisation of knowledge at various points in development (and one can argue with them), then they must logically influence the selection of what information to present to the child, and when. In this sense, a specific developmental theory, as a theoretical resource, must influence curriculum selection and design, and the criticism loses its force, at least for Piaget's theory.

Individual and Cultural Differences

We can also tackle the supposed lack of attention to social cultural factors and gender in developmental theory. By reconceptualising Child Development theory as trans-disciplinary and practice oriented, we can cover theories and research from areas and approaches which do incorporate these perspectives, including educational philosophies which give primacy to education for democratic living. Moreover, as Bradley (1989) & Hinde (1992) argue in different ways, a new strong focus is becoming apparent in multi-disciplinary approaches to developmental discussion and theory. In the last several years, there has been a broadening of the concept of development to give central roles to affective influences and social complexity, particularly in those approaches which draw the context into their perspectives on the processes of development. Lambert's chapter describes some of these more recent frameworks. Child Developmentalists in early childhood education should have no difficulty in incorporating such multi-disciplinary approaches, especially since the lead has been set by the chapters in this volume by MacNaughton and Lambert.

Conclusion

School v. Preschool Settings

I think it is important to consider further the point made by most writers I have been reviewing — that selecting what goes into a curriculum (rather than how to present it) is often a matter of philosophical and political preference. In the case of the social reconstructionists it is relevant to recall that they tend to focus on Early Childhood in the school setting and argue from this viewpoint. And in many ways their criticism of the restrictive nature of the developmental approach has considerable force in this Early Childhood context. In the school setting, wider considerations do, and must, apply in the selection and design of curriculum, particularly in the public school. As Bredekamp (1991) points out, in the NAEYC (1987) version of DAP, they do.

However, it is important to bear in mind that, with the concept of development, the focus is the child, the learner, the knower; the emphasis is on child's organisation and management of the world. On the other hand, with the concept of curriculum, the focus is on what is to be known, what the child will learn; the emphasis is on the curriculum designer, the educator. Therefore, the concepts encoded in a phrase such as 'Developmentally Appropriate Curriculum' contain a tension in their implementation. They emphasise two different aspects of the learning and knowing process and two different components of the learning interaction.

For this reason, the emphasis must differ depending upon which sector of Early Childhood we are concerned about. If we are focusing on the kind of educational program that should be followed in preschool, especially day care settings which cater for infants and toddlers and children under five, a more exclusive emphasis on information from child development theory and research seems more defensible than in the early years of school.

Early Childhood Educators in these sectors, perhaps more than in the school sector with its competing priorities, have a pressing need to start with the child's development. The younger the child, the more likely it is that endogenous or maturational aspects of development are unfolding, taking up more developmental effort, and more closely following a universal genetic blueprint (as with walking and talking). Here, to borrow from Elkind (1993), the basic material of education is not the curriculum, not assessment or curriculum outcomes, and not methods; the basic material of education is the child (p.61).

By the time the child is getting ready for school, the world is expecting more diversity in developmental patterns (due to social influences), and anticipates that the child will be more able to be formally instructed in valued cultural transmissions — now we are talking about a greater attention to curriculum in its most usual sense.

The key question is whether the principal ideas behind curriculum and developmental approaches are to some extent incompatible in the bigger developmental picture from birth to eight, from infancy to the early school years. Is there too great a tension between the purposes of the two endeavours? In other words, is there too much need in the school sector to trade off between the implementation of the two ideas in a way that would be unnecessary and undesirable in the preschool years?

I think that what comes through in reading the different positions in this area is that the whole debate turns on differences in the value placed on developmental considerations. That the answer is, in a sense, politically determined is evidenced by the current debate about what is more valuable — developmental appropriateness or what should be taught. What conclusion is drawn seems to reflect the political philosophy of the writer (whether one places a higher priority on what is good for the individual or on what is good for society, or even just what consideration takes first place in this age-old dilemma); but it is also influenced by the backgrounds of the participants. (Which sector of Early Childhood Services did the writer come from, or seems most concerned about? Did the writer train in Education or Psychology?). If the sector is school (or preparation for school) then one would tend to understand and to think from a curriculum and direct instruction point of view. If long day care, one may tend to take a viewpoint focused on developmental programming, eschewing direct instruction in favour of structuring the child's experiences (which, although sometimes described

very broadly as 'curriculum', is not really the same kind of program at all).

What this kind of analysis is leading towards is the conclusion that, in spanning the years 0–8, Early Childhood Education needs to reconsider the relationship between curriculum-based and purely developmental approaches. We need to take a developmental perspective ourselves, as a professional field, in assigning appropriately the respective emphases on curriculum and developmental programming — adjusting the emphasis according to the age of the children, their developmental needs, *and* the social demands of the context in which we are working. A stronger emphasis would therefore be placed on developmental considerations in the early preschool years; but this would start to give way to more formal curriculum considerations in the early years of school. In fact, if we examined our practice, we would find that this is what we do, but it is rarely made explicit. Quite the converse: we are much more likely to defend both kinds of practice as the same thing — developmentally appropriate. We lack the language to distinguish between the differing demands of the school and the preschool settings when we use the phrase 'developmentally appropriate practice' to describe both. The conclusion I am drawing is that we should recognise and acknowledge explicitly the differences in approach to the child that the transition from preschool services to school brings with it, instead of trying to force the different needs of children over whole age range of 0–8 years into a single uniform approach for both types of settings. Perhaps we should say 'DAP for School' (for the school years) and 'DAP for Preschool' (for the preschool years) and highlight, instead of blurring, the differences they bring to our approach.

As you can see, the wisdom of a uniform approach to DAP across the internationally defined Early Childhood age range of 0–8 years is being questioned here. I am not, however, suggesting for a single moment that we should jettison the developmental approach for the school sector. Nor am I advocating anything that would separate the care of young children from their education. The question I am posing is one of balance and adjustment to the child's changing needs over the 0–8 range — i.e. whether we should try to incorporate the whole span in a single approach, or whether this is not too simplistic, given the differences in the needs of children at each end of the range and the demands of the settings for which we are training professional personnel. Should we not recognise these differences in the demands of the sectors and separate them in our approach? Should we have two sub-specialisations within the Early Childhood profession, for which the professional preparation is significantly different?

Dr Jan Kelly (personal communication) has been arguing for some time that the politics of school and preschool services in Australia are driving us this way (although I think she would want to resist them), and Jean Gifford (1992) has argued that the logistics of professional preparation push us towards a specialisation solution. Certainly the politics of tertiary education are pushing us this way too. Amalgamations with larger general education faculties see us struggling to keep the two sectors together. We may have to recognise the inevitability of this separation taking place in some way.

I realise that my *conclusion* is deceptively simple and easy to say, and that it would be much less easy to implement. But we should give some further thought to the idea of establishing ourselves into two sub-sectors — one in which the primacy of

developmental considerations holds sway (perhaps focusing on 0–4) and the other in which notions of curriculum are more formally introduced (the years 4–8, or even up to 10 as has been suggested in some quarters). Perhaps instead of espousing developmentally appropriate practice in both settings (as though it is somehow the same approach), we could confront the differences in the demands of each and talk about developmentally appropriate *programs* in the preschool sector and developmentally appropriate *curricula* in the school sector. This way we could contribute to clearing up the definitional ambiguity in the final word 'practice' in the term DAP which is also confusing the debate.

Implications

This conclusion, I recognise, has potentially serious implications for the political separation of 'care' and 'education' which, of course, is politically unthinkable these days. It also has enormous implications for professional preparation, the organisation of the profession itself, and for administration of services, their funding, and government children services policy. Nevertheless, it is yet another debate we have to have 'up front', instead of hoping it will go away if we combine or confound the concepts of education, care and development by calling them all 'developmentally appropriate practice'. This ignores the different emphases we place on each of them across the range of early childhood settings our children pass through from birth to eight years. Perhaps now is the time to discuss this and other solutions, and to find a middle path, a progressive path, through the Early Childhood Education debate.

With Goffin (1994), this chapter will end with a remark made by Bruner (1990), who has been a committed social constructivist for a very long time:

> *'I take open-mindedness to be a willingness to construe knowledge and values from multiple perspectives without loss of commitment to one's own values. It demands that we be conscious of how we come to our knowledge and as conscious as we can be about the values that lead us to our perspectives. It asks that we be accountable for how and what we know. But it does not insist there is only one way of constructing meaning, or one right way.' (p.30)*

References

Achenbach, T. (1988) Developmental psychopathology. In M. Bornstein & M. Lamb (eds) *Developmental psychology: An advanced textbook, 2nd edition*, 549–59. Hillsdale, N.J.: Lawrence Earlbaum.

Bloch, M. (1991) Critical perspectives on the historical relationship between child development research and early childhood education research. In S. Kessler & B. Swadener (eds) *Reconceptualizing the early childhood curriculum: Beginning the dialogue*. New York: Teachers College Press.

Bornstein, M. & Lamb M. (eds) (1988) *Developmental psychology: An advanced textbook, 2nd edition*. Hillsdale, N.J.: Lawrence Earlbaum.

Bradley, B. (1989) *Visions of infancy*. Cambridge: Polity Press.

Bredekamp, S. (ed.) (1987) *Developmentally appropriate practice in early childhood programs serving children from birth through age 8*. Washington, D.C.: National Association for the Education of Young Children.

Bredekamp, S. (1991) Redeveloping early childhood education: A response to Kessler. *Early Childhood Research Quarterly, 6*. 199–209.

Elkind, D. (1989) Developmentally appropriate practice: Philosophical and practical implications. *Phi Delta Kappan, 71* (20), 113–117.

Elkind, D. (1993) *Images of the young child*. Washington D.C.: NAEYC.

Gifford, J. (1992) A stitch in time: Strengthening the first years of school. Commissioned Report No. 16. Canberra: Schools Council, National Board of Employment, Education and Training.

Goffin, S. (1994) *Curriculum models and early childhood education: Appraising the relationship.* New York: Merrill.

Hinde, R. (1992) Developmental psychology in the context of other behavioral sciences. *Developmental Psychology, 28* (6), 1018–1029.

Jipson, J. (1991) Developmentally appropriate practice: Culture, curriculum, connections. *Early Education and Development, 2* (2), 120–136.

Kessler, S. (1991a) Alternative perspectives on early childhood education. *Early Childhood Research Quarterly, 6* (2), 183–197.

Kessler, S. (1991b) Early childhood education as development: Critique of the metaphor. *Early Education and Development, 2* (2), 183–197.

Kessler, S. & Swadena, B. (1992) *Reconceptualising the early childhood curriculum: Beginning the dialogue.* New York: Teachers College, Colombia University.

Kohlberg, L. & Mayer, R. (1972) Development as the aim of education. *Harvard Education Review, 42* (4), 449–496.

NAEYC Position Statement: Guidelines to appropriate curriculum content and assessment in programs serving children ages three through eight (1991) *Young Children, 46* (3), *21–38.*

Seitz (1988) Methodology. In M. Bornstein & M. Lamb (eds) *Developmental psychology: An advanced textbook, 2nd edition,* 51–83. Hillsdale, N.J.: Lawrence Earlbaum.

Spodek, B. (1988) Early childhood curriculum and the definition of knowledge. Paper presented to the Annual Conference of the American Educational Research Association, New Orleans, 1988. ERDS.

Sternberg, R. (1988) Intellectual development: Psychometric and information-processing approaches. In M. Bornstein & M. Lamb (eds) *Developmental psychology: An advanced textbook, 2nd edition,* 261–295. Hillsdale, N.J.: Lawrence Earlbaum.

Swadena, B. & Kessler S. (1991) Introduction to special issue: Reconceptualising early childhood education. *Early Education and Development, 2* (2), 85–94.

Zigler, E. & Finn-Stevenson, M. (1988) Applied developmental psychology. In M. Bornstein & M. Lamb (eds) *Developmental psychology: An advanced textbook, 2nd edition,* 595–634. Hillsdale, N.J.: Lawrence Earlbaum.

CHAPTER EIGHT

Concluding the Debate: Mind games– What DAP means to me

Margaret Clyde

Introduction

Educational programs for young children have been a part of the Australian scene for over 100 years. Originally, they were operated by philanthropically-minded, sometimes untrained women who thought it was important to care for and care about preschool-aged children whose mothers would not — or could not — take responsibility for their welfare. From the outset these *Kindergartens*, as they were known, were based on elements of Froebel's Kindergarten program, which had begun in Germany some 50 years before and had reached Australia via American and English sources. Froebel's activities were based on a series of Gifts and Occupations he had devised to assist in the overall development of each child: the Kindergartener's role was to observe each child's progress and to provide assistance when needed. The adult was not required to be responsible for the experiences, but was seen as someone who responded to children's needs. If the children were active, happy and well-adjusted then it could be assumed that the program was a good one. Following the Second World War, so-called middle-class parents established preschools and, although the program now encompassed many more children, the philosophy remained the same.

The 1960s witnessed a change in this *laissez-faire* approach to education for preschool-age children. The work of eminent thinkers such as Piaget, Bruner, Bernstein, McVicker Hunt, Bloom, and others proved a theoretical framework for those who worked with young children. At about the same time as researchers and teachers alike grappled with the implications of Piaget's global stage theory of development and its impact on learning, the United States Government enacted legislation whereby all four-year-olds perceived as disadvantaged for any reason could be enrolled in a special program to prepare them to compete equally with their advantaged peers when they began school. So the Head Start program was born, and with it came an increased interest in emerging theories of development and learning, those of Piaget in particular receiving great attention.

Piaget's theory of development

Some of Piaget's major writings on development had been available since the 1930s but they had not been translated into English for some time, thus limiting their audience. However, Piaget's ideas found a great deal of currency in the 1960s when Head Start planners and other educators in the English-speaking world were more receptive to new concepts. He argued that development occurs in stages, each stage being qualitatively different from each of the other stages, and that everyone moved spontaneously through the various stages of development in the same sequence and at about the same age, irrespective of the cultural environment in which they lived or the experience in which this development occurred. Learning was seen by Piaget a subordinate to development in that it was provoked by situations (Steffe & Tzur, 1994). While Piaget viewed development as a process of spontaneous reconstruction, learning was a limited process which occurred as a result of exposure to a single problem or a simple situation.

Piaget's theory of cognitive development in particular appeared to explain the different responses provided by children of different ages (and therefore different stages of development) to particular problems involving logical and

mathematical concepts. His work was used intensively as a basis for several Head Start Model programs, including those of Lavatelli, Kamii and de Vries, and Weikart. The fact that three very different preschool programs were seen to emanate from the one theoretical basis did not appear to concern early childhood workers of the 1960s and 1970s.

Developmentally Appropriate Practice

In 1986, the National Association for the Education of Young Children (NAEYC), based in Washington, produced its first definitive statement on 'good' practice for young children. It was based on the theories of Piaget and argued that 'good' practice considered two variables when planning appropriate programs for children aged 3–8 years; namely, whether the program was 'age-appropriate' and 'individual appropriate' for the children under consideration. The definitions included the following statements:

- Age appropriateness — there are universal predictable sequences of growth and change that occur in children during the first nine years of life. Human research indicates this. These (sequences) are predictable (and include social, emotional, physical and cognitive development).
- Individual appropriateness — each child is a unique person with an individual pattern of growth as well as (possessing) an individual personality, learning style and family background.

(Bredekamp, 1986)

The DAP manual became the basis for most curriculum planning undertaken for English-speaking children aged 0–8 years. It included examples of 'good' and 'bad' practice which became subject to debate over the ensuing five or so years. In 1993, NAEYC, at its Annual Conference, announced it was undertaking a revision of its DAP philosophy. Bredekamp's position paper indicated that since 1986:

> *... the documents have been subject to thoughtful criticism. In addition, the documents have been misinterpreted at times.*
>
> (Bredekamp, 1993, p. 1)

She acknowledged that major concerns rotated around the over-reliance on Piagetian theory in the face of current research and theory: 'the documents have been criticised as being naively Piagetian, not reflective of Vygotsky and not reflective of information processing theories of learning' (Bredekamp, 1993) as well as failing to take account of those children who are not from a white, middle-class culture. There is ample evidence to support that criticism; for instance, Burts *et al.*, 1992 study of children who were from low socio-economic status families and/or black, demonstrated less involvement in the so-called developmentally appropriate activities and methods than did white, middle-class colleagues.

To be fair to NAEYC, it should be recognised that the 'recommended practices' in the original document were meant to be examples only, rather than a definitive list of appropriate practices, while the 'inappropriate examples' could have been misconstrued by classroom practitioners. Notwithstanding these areas of general concern with the Piagetian-based practices, Kostelnik (1992) has suggested that DAP, far from clarifying the relevant educational practices of the early childhood profession, has generated a series of myths:

- DAP is a fad; soon to be replaced;
- DAP has no place for academics;
- DAP can be defined by dichotomous positions; it is either right or wrong;
- DAP classrooms lack structures;
- DAP teachers don't teach;
- DAP requires teachers to abandon all knowledge and experience previously gained;
- DAP ensure that children learn less than they have in the past.

(Kostelnik, 1992, pp.17–23)

After Piaget

Those researchers and early childhood teachers of the 1990s who have become increasingly critical of any Piagetian-based approach to early learning would appear to have a mounting body of knowledge from a variety of sources to support their concerns and contentions. Goffin (1994) has suggested that since the 1960s there have been at least four major areas to be considered. They include a renewed appreciation of the role of heredity in human development; we have a more differentiated understanding of the contribution towards development of the environment; there is a growing recognition of the social nature of development and the learner's contribution to the process and there has been a reassessment of developmental psychology as an objective science. Horowitz and O'Brien concluded in 1989:

> *'Development is not a disease to be treated. It is a process that needs constant nurturance. There is no reason to expect that an intensive program of early stimulation is an inoculation against all further developmental problems.... Currently, according to the most viable model of development that applies to both at-risk and normal children, developmentally functional stimulation is desirable at every period of development and not only in the early years.'* (In Goffin, 1994, p.10)

Bruner and Haste (1987) (quoted by Goffin) highlight the crucial importance of the learning context and the way in which it has gained credibility over the past decade or so through the work of people such as Bronfenbrenner and Vygotsky. Fleer (in Chapter two) has reminded us of the work of Wood (1988) that:

> *'The view [is] that adult and child, working together, can construct new schemes through shared interaction. The potential effect of teaching will prove to be far greater than Piagetian theory allows.' (p.195)*

This idea embodies the concept of Bruner and Haste of the 'quiet revolution' which has taken place in developmental psychology:

> *'...not only that we have begun to think again of the child as a social being — one who plays and talks with others, learns through interactions with parents and teachers — but because we have come more to appreciate that through social life the child acquires a framework for interpreting experiences and learns how to negotiate the meaning in a manner congruent with the requirements of the culture.'* (In Goffin, 1994, p.113)

There are other major concerns relating to a Piaget-based theory of development: the first is that Piaget's four discrete stages indicate an endpoint to development whereas some developmentalists — including Bronfenbrenner, Kessel, Haberman and Sutansky — now argue that there is no one, clear endpoint or standard of development towards which all individuals evolve. The second major concern, and one which must be the final nail in the DAP coffin, appears to be the growing

acceptance by early childhood practitioners that child development theories per se are not geared to the world of practice: these theories provide very little guidance about the ways in which the various diverse populations of young children can be 'matched' with a developmentally appropriate program of some kind. For example, Goffin (1994) quotes Fein and Schwatz's 1982 argument that theories of child development are passive, whereas learning is active. Goffin suggests that what practitioners really need are theories of practice which are active and which provide insights into desirable behaviour or types of knowledge and which formulate strategies for constructing environments which will enhance the young child's repertoire of knowledge and skills. The role of the teacher has to reflect this new focus, in that her role must be less predetermined, less segmented, more reflective and take account of the need for each child to operate in their own context, using their own experiences, ways of learning and interests. In this way, the young learner can generate 'practical wisdom' in terms of understanding and articulating problems and proposing solutions.

Vygotsky's contribution

The work of Vygotsky has filled some of the stated concerns of the Piagetian approach to learning. Vygotsky has criticised the view that learning is subordinate to development: rather he emphasises the essential influence of learning on development.

> *Any function in the child's cultural development appears twice, or on two planes. First, it appears on the social plane and then on the psychological plane.* (Steffe & Tzur, 1994, p.100)

Consequently, social interaction would seem to play a major role in Vygotsky's approach to learning. Elliott (Chapter 3) has taken this a step further by arguing that socio-cultural perspectives have emerged from Vygotsky's notion that children learn from active participation in both formal and informal activities with parents, other adults and children, provided these activities are culturally relevant. Vygotsky's ideas seem to fill the missing link in the DAP process. So, if learning will always involve other people and knowledge can be constructed by learners only as a result of modifying their own idiosyncratic knowledge by interacting with others, then we need to devise a strategy for this learning process whereby the teacher's intervention provokes the child to understand, possibly from a different point of view, an experience in such a way that the child has to modify or even undertake a major reorganisation of current knowledge.

This process of building on what the child appears to know in order to stretch the child to move on to the next stage of learning has been labelled *scaffolding*. Elliott (in Chapter 3) has described the process of scaffolding as the 'strategies and cognitive supports that guide, model or cue higher order processes' involved in the child's thinking or problem-solving. These strategies and cognitive supports are provided by the teacher and assist the child to solve a problem or complete a task which they could not have accomplished on their own. The scaffold, in terms of the analogy with its origins in the building industry, provides support for the children as they engage in problem-solving experiences which cause them to modify and/or expand their knowledge base.

While Elliott's description of the role of scaffolding, its place in the Zone of Proximal Development (ZPD), and the skills which can be involved in scaffolding techniques is very clear, there is some debate concerned with who controls and directs the interaction between the teacher and the child. Bickmore-Brand (1990) has argued that, while eminent researchers such as Cambourne, Graves, and Holdaway insist the child is responsible for extracting the instructional potential from the scaffolding situation, other equally eminent scholars — including Vygotsky, Bruner, Cazden, Ninio and Halliday — insist that the instructor takes on a specific instructional role and directs rather than guides the learner towards new knowledge. In any case, the roles and responsibilities for learning are shared by the mentor and the learner, and roles can, and are, reversed at times as the child gradually internalises the procedures for this particular problem and, more importantly, constructs meanings which they would not have been able to do if left to their own devices by a passive, reactive teacher.

The notion of the early childhood teacher assuming greater responsibility for the child's learning by assuming a proactive style is a crucial change from Piaget-dominated programs, as is the need for teachers to take control of some of the actual content of the learning experiences to which the scaffolding procedure is applied. However, teachers need to consider the advice of Hughes (1989) on this matter. While he acknowledges that developmental psychologists now regard young children as being intellectually much more competent than was thought previously, the supporting research appeared at least two decades ago when researchers began to look more closely at Piaget's claims that preschool-aged children lack the intellectual structures for logical and mathematical thinking.

Hughes suggests that Bryant (1994) and Donaldson (1978) demonstrated that children as young as three or four could, in certain circumstances, experience success on alternative versions of Piaget's tests for conservation, class-inclusion and egocentrism. In fact, we are learning very quickly to appreciate that children not only start school with a substantial understanding of addition and subtraction, but that they have multiple paths for solving these mathematical actions. However, Hughes insists that early childhood teachers will have to reflect upon the traditional role they have played in their verbal interactions with young children. He argues that the scaffolding process does not imply that teachers will act as persistent questioners, as typically found in teacher/child conversations, nor will the teacher's role involve 'bathing' the child in language, as was frequently advocated in some Head Start programs; rather the teacher's role will be to listen to the child's questions and comments, help them to clarify their ideas, and feed them information when requested. Hughes and others, including this writer, have severe misgivings about whether the current generation of early childhood teachers has had any encouragement to embrace this new role of interacting with the learner rather than transmitting knowledge on request.

After scaffolding

Lambert (in Chapter 5) has suggested that, while many members of our profession remain locked in a DAP protocol, our theoretical perspectives about children's learning have moved beyond Vygotsky's original notion of scaffolding as the way to move knowledge from outside the child to a position where the child internalised, or owned, the knowledge. Lambert has argued that children develop because of, rather than in, their

environment, that the context of the learning plays an active role in a child's cognitive development and therefore cannot be ignored. She argues that young children can succeed in areas previously thought to be too difficult for them if the following criteria are addressed:

- tasks are modified and/or made more relevant and meaningful;
- the test situation is relaxed and informal (often a part of the child's play choices);
- the problem to be solved is considered to be relevant by the child; and
- the language used is designed to be meaningful and instructional to the child; this appears to be a direct link with Hughes' recipe for verbal interaction between mentor and learner.

In addition, Lambert's argument includes a powerful description of learning as an 'interpretative network which spreads across domains, a meaningful network of core understandings that ultimately become a meaningful frame of reference for causal reasoning and problem-solving'. The process involves the development and enlargement of a dispositional framework, based on the child's motivation, cognitive receptivity, and ability. This disposition cognition theory, while acknowledging the influences of previously ignored variables, including culture and gender, implies that the early childhood teacher has to plan ways of joining these spheres of motivation, receptivity, and ability together to make learning meaningful for each child. This is a giant leap from Piaget's stages theory and DAP's ages theory.

Lambert has posed several critical questions for us as early childhood teachers and researchers which may cause a drastic rethinking of our approach to preparing early childhood professionals for their role in the coming century. She asks: 'Can we teach isolated facts if knowledge is part of clustered networks?' The answer clearly is 'no' which jeopardises our current model of helping children to understand mathematical and scientific facts. It also should cause us to rethink our decisions in the past to present concept-specific problem-solving dilemmas to young children, thus de-contextualising the children's ability to reason and to solve problems. In addition, Lambert urges us to relook at the once maligned role of thematic teaching as a way of supporting conceptual integration.

MacNaughton (in Chapter 6) has taken up some of the more important ideas presented by Lambert, but places them in a feminist post-structuralism context. She argues that no one discourse on children's learning is inherently truthful or valid but we need to take account of the social and cultural constituents of learning.

A final thought

In addition to the concerns of those within the field of developmental psychology towards our knowledge and practice in the area of children's learning, there has been a steady and insistent increase in criticism from those from other fields which contribute to the learning process. For example, those who argue that early childhood programs are not content-free and do not necessarily emanate from within the child; those who argue the need to recognise that there are individual pathways to learning (as Dockett, Lambert and MacNaughton have done in this book); those who are concerned about our inability to perceive the critical role of the environment and its different consequences for different children and, finally, those who wonder whether in fact an emphasis on developmental theory per se simply limits rather than expands our

knowledge of children. Cross' careful arguments relating to developmental theory per se (Chapter 7) will be useful for readers who wish to consider this aspect of influences on young children's thinking.

Clearly, we have a long way to go in terms of expanding and extending our knowledge of the way in which young children learn and our role in the process. Dockett (in Chapter 4) has summarised the process we must endure when she says:

> *We need to question our understandings and expectations of young children; we cannot determine, explain or excuse behaviour because a child is not at a certain 'stage of behaviour'.*

Dockett exhorts us to know about each child, their capabilities and capacities for learning, to give them time and opportunities to reflect on previous experiences as well as providing a model for reflection, to ask children why they think things happened. (Piaget told us not to ask children 'why', but rather 'what' and 'how' questions.) On the other hand, Dockett does not suggest that this kind of program implies more academically rigorous programs at an earlier age, but rather a stretching, enhancing, and expanding of relevant, apposite experiences. Nor does this imply that young children will respond to situations in an adult-like way; their lack of experience would prevent that in any case, but it is interesting to note that these child-like, as opposed to adult-like, responses to questions of logic and mathematics caused Piaget to posit his global stages theory. We have come a long way since then, but we must ensure that we acknowledge the more recent concepts of learning by incorporating them into our curriculum processes. If that implies the end of many DAP assumptions, so be it.

References

Bredekamp, S. (1986) (ed.). *Developmentally appropriate practice*. Washington: NAEYC.

Bredekamp, S. (1993) NAEYC to revise position statements on developmentally appropriate practice. Position statement presented at NAEYC Conference, Anaheim, November.

Bickmore-Brand, J. (1990) (ed.) *Language in mathematics*. Carlton: Australian Reading Association.

Burts, D.C. *et al.* (1992) Observed activities and stress behaviours of children in developmentally appropriate and inappropriate kindergarten classrooms. *Early Childhood Research Quarterly, 7* (2), 297–318.

Dodge, D.T. *et al.* (1993) Getting started in the primary grades: Helping teachers make sense of developmentally appropriate curriculum. Paper presented at NAEYC Conference, Anaheim, November.

Hughes, M. (1989) The child as a learner: The contrasting views of developmental psychology and early education. In Charles W. Desforges (ed.), Early Childhood education. *The British Journal of Educational Psychology Monograph Series, 4*. Scottish Academic Press, 144–157.

Goffin, S.G. (1994) Curriculum models and early childhood education: Appraising the relationship. New York: Macmillan.

Kessler, S. & Swadener, B.B. (1952) Reconceptualising the early childhood curriculum. New York: Teachers' College Press.

Kostelnik, M.J. (1992) Myths associated with developmentally appropriate programs. *Young Children, 47* (4), 17–23.

Smith, L. (1989) Changing perspectives in developmental psychology. In C.W. Desforges (Ed), *Early Childhood Education. The British Journal of Educational Psychology Monograph Series, 4*. Scottish Academic Press, 16–32.

Spodek, B. (1988) Conceptualising today's kindergarten program. *The Elementary School Journal, 89*, 203–211.

Steffe, L. & Tzur, R. (1994) Interaction as children's mathematics. *Journal of Research in Childhood Education, 8* (2), 99–116.

Walsh, D.J. (1991) Extending the discourse on developmental appropriateness: A developmental perspective. *Early Education and Development, 2* (2), 109–119.